Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

UNITED STATES
DEPARTMENT OF AGRICULTURE
LIBRARY

BOOK NUMBER 1
Ag84W
v.1
1913-1914

349761

984 W

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

VOL. I WASHINGTON, D. C., AUGUST 13, 1913 No. 1

OFFICE OF MARKETS AND RURAL ORGANIZATION U. S. DEPT OF AGRICULTURE

FOREWORD.

The purpose of this Weekly News Letter is to supply each week to the crop correspondents the latest and most important news of the Department of Agriculture. It will be limited largely to the circulation of fully tested matter which the individual producer can apply to his own direct profit and to the agricultural betterment of the nation.

Those receiving the letters are at liberty to communicate them to their neighbors and to their local newspapers and agricultural journals. They will thus render a service to the department.

This first number must be regarded largely as an experimental issue, to determine the best system of publishing and mailing the News Letter. Later numbers, it is believed, will be made still more interesting and of greater practical value. In this first number, because of the need to extend the mechanical facilities somewhat, it is impossible to include the localized supplements. These will be appended to later issues.

The Weekly News Letter, however, will fail to discharge its full purpose unless it is of direct practical value to the communities to which it is sent. Any suggestions for its improvement on the part of the official crop correspondents will receive most careful consideration.

WARNING AGAINST DANGEROUS POTATO TUBER MOTH.

The potato tuber moth is working such injury to potato crops, especially in Texas and California, that the Bureau of Entomology of the United States Department of Agriculture has issued special instructions to potato growers to help them overcome this highly injurious pest.

The department urges potato growers to sort the potatoes for seed two weeks after digging and then to sort them over two weeks later. It is easy to pick out the infested tubers because of the excrement of the moth, which adheres by means of a web to the outside of the potatoes and can be readily detected. The tubers unaffected by the tuber moth should then be placed in a moth-proof bin.

The tubers placed in the moth-proof bin, after final sorting, should then be fumigated by means of carbon bisulphid (or bisulphid of carbon, as it is also known) in order to kill any moths which might have bred out or have slipped in through crevices, or when the bin was opened. Carbon bisulphid is applied by pouring small quantities into flat vessels, such as milk pans or pie tins. An average of 3 pounds should be used in 1,000 cubic feet of space. It is more effective at high temperatures, 80° to 90° F. being best. About a pint is poured into each receptacle and the pans are placed in the bins at the top. The gas, being heavier than air, naturally penetrates the mass of potatoes, reaching those at the bottom. The bin should be tightly closed for from 24 to 36 hours, with good assurance that the germinating power of the seed is not destroyed. The utmost care should be taken that no fire, such as that from a cigar, electric fan, stove, or even a gas light or lamp, should be brought into the vicinity. Otherwise, as the gas is very inflammable, a fire may result or a serious explosion may follow.

All potato growers should keep a careful "lookout" before and after fumigation. At first the fumigated seed potatoes and those in the field should be inspected daily to detect any growth of the insect; later, observation every other day and, finally, once a week should be sufficient. If there is any indication that the tuber moth is propagating, a second fumigation with carbon bisulphid should be given.

This method of saving seed potatoes is so simple, although very effective, that the specialists fear that many potato growers will disregard it.

HOW TO OBTAIN A SUCCESSFUL CROP OF HAIRY VETCH.

The Department of Agriculture has just published the tests of hairy vetch seed made by the seed laboratory last year. Two hundred and seven, or over one-half, of the 391 samples of seed examined were either misbranded or adulterated. There was no hairy vetch seed in 17 samples, and the others contained varying amounts of spring vetch and wild vetches.

Besides being misbranded and adulterated, seed often germinates poorly. When the quality of the seed which is being sold is taken into consideration, it is not surprising that a poor stand is frequently reported. Hairy vetch frequently does not do well the first time it is seeded, on account of a lack of "nitrogen-fixing" bacteria on its roots. These bacteria use

57622—14

'43

the nitrogen in the air, which the plant can not use alone. They can be supplied either by inoculating the soil from a field where hairy vetch has grown well or by inoculating the seed with a pure culture of the bacteria. Pure cultures for experimental purposes can be obtained without charge from the Department of Agriculture.

While hairy vetch is one of the best winter annual leguminous cover crops, and on account of its hardiness adapted to growth in the North as well as the South, frequent failures occur. Failures can be avoided if these suggestions are followed:

(1) Use hairy vetch seed which is not adulterated or misbranded.

(2) Use hairy vetch seed which germinates well.

(3) When seeding land to hairy vetch for the first time, either inoculate the seed with a pure culture of the "nitrogen-fixing" organism or inoculate the soil with soil on which hairy vetch has grown.

SUCCESSFUL ACTION AGAINST MISBRANDED INSECTICIDES.

To protect farmers from buying insecticides sold under false or misleading labels, the Department of Agriculture, in cooperation with the Department of Justice, is carrying on an active campaign against manufacturers who ship misbranded insecticides in interstate commerce.

Recently, as a result of Government prosecutions under the insecticide act, the courts fined G. E. Conkey, Cleveland, Ohio, $25 and costs for misbranding and shipping in interstate commerce "Conkey's Dip and Disinfectant," "Conkey's Nox-i-cide," and "Conkey's Fly Knocker." The label on the first product was alleged to be false because it would lead the purchaser to believe that the product had been approved by the Department of Agriculture. In the case of the "Nox-i-cide" misbranding was alleged because the article consisted partially of an inert substance, which does not prevent or destroy insects and the percentage of this inert matter was not stated on the label. In the case of the "Fly Knocker" the misbranding was alleged because the label stated that the package contained 1 quart, whereas it contained less than 1 quart.

The Sherwin-Williams Co., Cleveland, Ohio, pleaded guilty to misbranding and adulterating "Arsenate of Lead." The adulteration was alleged to be the addition of a substance which would reduce and affect the quality and strength of the article. Misbranding of the article was alleged in that the label bore the words "New Process Arsenate of Lead," whereas the product consisted of arsenate of lead and arsenite of lead. Misbranding was also alleged because the label guaranteed the article to contain not more than one-half of 1 per cent water-soluble arsenic, whereas it contained more than one-half of 1 per cent. The Sherwin-Williams Co. entered a plea of guilty, and the court imposed a fine of $50 and costs.

Seven cases of another insecticide called "Zenoleum" were ordered destroyed, on the ground that they were misbranded because the article consisted partially of water and the presence of water was not indicated on the label.

NEW PLAN OF PUBLICATIONS.

With the twofold object of making its generally circulated bulletins of greater practical value to the actual farmer and of making a larger part of its publication fund available for the printing and mailing of practical bulletins, the department has made a radical change in the nature of its publications. The large volume of matter heretofore published in the bulletins in the form of technical analyses or making recommendations in scientific terms and language which only a trained chemist, biologist, or physiologist could understand and apply, will hereafter be published only in the newly-founded Journal of Agricultural Research, in scientific monographs, and in the journals of the scientific societies. The circulation of these will be limited to people with special technical or scientific training. Wherever these results have a practical application for the actual producer they will be translated into simple statements and simply stated practical directions and published in Farmers' Bulletins. As a result of money thus saved, a greater number of popular bulletins can be issued and a larger edition of many of them provided. Later the department purposes to investigate the needs of women on the farms, with a view to supplying housewives with more material which will be of interest and direct practical value to them in their field of agricultural production.

TICKS LOWER VALUE OF HIDES.

One of the field demonstrators of the United States Department of Agriculture who has been investigating the effect of the tick has found that this cattle pest has damaged hides so badly in many southern districts that the average market value of hides of tick-infested cattle is $1.26, or 3 cents per pound on an average, less than the hides not damaged by the tick. A prominent tanner in Pennsylvania who specializes in the making of chrome leather with the natural grain left on states that the tick so interferes with the usefulness of the hides for this purpose that he has practically stopped purchasing southern hides. The cost of eradicating the tick is only about 50 cents per head. Cattle producers, therefore, could pay for tick eradication and make a clear profit of about 76 cents above the cost, on the hides alone. This is apart from the increase in the general value of stock when freed from ticks. It is estimated that tick eradication in Ten-

34976

nessee has raised the general market value not less than $7 per head, giving a profit of $6.50 above the cost for getting rid of the tick.

PURPOSE OF FOREIGN MEAT INSPECTION TO PROTECT AMERICANS FROM BAD MEAT.

Owing to a misunderstanding of press dispatches, announcing that the Department of Agriculture had sent inspectors to study meat conditions in South America and Australia, many people have gained the idea that the purpose of this mission is to encourage foreign producers to bring their meat into competition with the local product.

The primary object in sending these specialists abroad is neither to encourage nor to discourage the export of meat to the United States, but to supply, if possible, the data by which the department can cooperate effectively with the Secretary of the Treasury in keeping out of the United States all meats produced from diseased cattle, all meats slaughtered in insanitary establishments or improperly refrigerated, packed, or shipped, and all meat products prepared abroad under conditions that would not be permitted in the Federally inspected establishments of the United States. This foreign inspection of meat has become very necessary, irrespective of changes in the tariff on meat, for the reason that since 1906 the total domestic production of cattle has been 30 per cent less than the actual demand. The department is using every effort to increase the domestic production of meat. In the meantime, however, with the demand for meat greater than the domestic supply, it is only a question of time when economic law will cause foreign producers to seek a market in the United States. The department, therefore, wishes to be ready, so that it may join with the Treasury Department in excluding all diseased, unwholesome, and undesirable meat offered for entry.

GOVERNMENT STOPS HAVOC OF BARK BEETLES.

By a prompt campaign against a flourishing colony of bark beetles on the Ochoco National Forest, central Oregon, the Government has eliminated a pest which threatened to destroy millions of feet of timber. Evidences of the presence of these destructive bark beetles, including the mountain pine beetle, was discovered, and in 1912 the foresters cut and burned 3,500 infested trees. This summer 40,000 infested trees were cut, and as a result the beetle pest is believed to be under control.

THE OFFICE OF MARKETS.

In the appropriation bill for the current fiscal year Congress appropriated the sum of $50,000 "to enable the Secretary of Agriculture to acquire and to diffuse among the people of the United States useful information on subjects connected with the marketing and distributing of farm products." Under this clause the Office of Markets, established in May, with Charles J. Brand as chief, is being organized in the Department of Agriculture. The purposes of this office are to investigate present systems of marketing and distributing farm products; to aid producers, manufacturers, and consumers in devising and maintaining economic and efficient systems of storage, transportation, marketing, and utilization; to devise methods for reducing or eliminating the wastes and unnecessary expenses of present systems of marketing and distribution; and to assist, so far as lies within the authority of the Department of Agriculture, in the organization and extension of cooperative production, marketing, distribution, and buying.

In the prosecution of this work the Office of Markets may be required to undertake the study and promulgation of various market grades and standards, to make surveys of the markets of the country and of the demand for and the supply of farm products, to investigate the feasibility of a market news service for perishable products, and to do any other work from which information may be derived as to methods by which farm produce may be delivered by the producer to the consumer with a minimum waste and at a minimum cost.

The Office of Markets is carrying on the work formerly conducted by the Bureau of Plant Industry in cotton handling and marketing. Special attention will be given to this work.

This office is as yet only in process of organization. The United States Civil Service Commission has just held examinations to secure six specialists in marketing perishables, in organization, transportation, cooperative accounting, etc., and it is expected that the investigational work of the office will be gotten under way in the near future. No publications have yet been issued, and the office has no representatives of any kind stationed outside of Washington. Information relative to marketing conditions in various parts of the country is solicited, and should be addressed to the Office of Markets, Department of Agriculture, Washington, D. C.

MEAT SEIZED UNDER FOOD AND DRUGS ACT.

The first case that has arisen since the food and drugs act was held to apply to meat and meat food products resulted in the seizure and confiscation in Chicago, Ill., on July 28, 1913, of 4,050 pounds of hog casings, shipped to that point from the State of Iowa. The seizure was made on the allegation that the hog casings were unfit for human consumption.

R. T. Galloway.

Assistant Secretary.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

VOL. I WASHINGTON, D. C., AUGUST 20, 1913 No. 2

IMPORTATION OF LIVE STOCK THROUGH GOVERNMENT QUARANTINE STATIONS.

There has been unusual activity in the importation of pure-bred live stock for breeding purposes this year. These importations have been made chiefly from the Channel Islands; but there has been, however, a number of importations from England and Scotland. The shipments from the Channel Islands have consisted of Jersey, Guernsey, and Alderney cattle. The latter two breeds are practically the same, registration of Guernsey animals being allowed in the Alderney herd book and vice versa.

Both the animal quarantine stations at Athenia, N. J., and Littleton, Mass., for the ports of New York and Boston, respectively, have been filled to their capacity. There are at present between 600 and 700 sheep and a number of cattle and hogs in quarantine at Littleton. A large number of permits have again been issued for importations through the port of New York, but the date of arrival has been so fixed that all the animals expected can be comfortably accommodated as they arrive at Athenia.

The new animal quarantine station for the port of Baltimore, located at Turner, Md., which is equipped with nine new stables and good-sized yards, is admirably located on the water front. Baltimore has very good cattle steamers running between Liverpool and that port. The milder latitude of this station, as compared with the two stations farther north, and the convenience of shipping to the station by barge and shipping from there by the railroads promise to make this station popular for importers in the south-middle Atlantic States and the Middle West. There have already been some importations through this station—namely, an importation of Kerry cattle from Ireland, another of Ayrshires, and several importations of sheep and swine.

GOOD COUNTRY ROADS PAY FOR THEMSELVES.

The direct effect that changing bad roads into good roads has upon land values and marketing prices, as well as the general economic welfare of the community, is shown in several concrete illustrations which were gathered by the United States Department of Agriculture. In Lee County, Va., a farmer owned 100 acres which he offered to sell for $1,800. In 1908 his road was improved, and, although the farmer fought the improvement, he has since refused $3,000 for his farm. A near-by tract of 188 acres is said to have been sold for $6,000. After road improvement the same farm was sold for $9,000. In Johnson County, Ala., the people voted a bond issue for $250,000 for road improvement. The selling value at that time was $6 to $15 per acre. The selling price is now from $15 to $25 per acre.

In another State two farmers living at equal distances from a cotton market learned by telephone that cotton had gone up in price $1 per bale. The farmer on the bad road hauled one bale of cotton, which was all he could get over that road. The other farmer, on the good road, was able to haul four bales. The man on the good road gained $4 by the rise in price, while his neighbor on the bad road gained only $1. A farmer in Sullivan County, Tenn., had 100 bushels of Irish potatoes which he intended to market during the winter. Owing to bad roads, he was unable to haul the potatoes at all. They rotted in the cellar. In the meantime the price of potatoes at a market point went as high as $1.40 per bushel.

GOVERNMENT INCREASES EASTERN TIMBERLAND PURCHASES.

With the close of the fiscal year 1913, forest lands amounting to 713,415 acres have been examined and appraised by the Forest Service and approved for purchase by the National Forest Reservation Commission. The areas lie for the most part in Virginia, West Virginia, North Carolina, Tennessee, and Georgia. About 100,000 acres are in the White Mountains of New Hampshire. The average price per acre is given as $5.07.

The work of acquiring eastern timberland has been carried on for over two years now under the provisions of the Weeks law, which appropriated some $8,000,000 for the purpose. Benefits to be derived from Government ownership of this land and its administration as national forests are in general as follows: Protection of the waters of navigable streams; prevention of soil erosion on mountain slopes; protection of timber from the fire danger; preservation of the purity and regularity of flow of the mountain streams, with a view to their use for the water supply of towns and cities; continuance of the timber supply to meet the needs of the industries of the country; preservation of the scenic beauty of the mountains for the pleasure and recreation of the people.

The procedure in making purchases includes, first, the general designation of "purchase areas" located where they will best carry out the terms of the Weeks law, the purpose of which is to bring about by the

Government "the acquirement of lands located on the headwaters of navigable streams or those which are being or may be developed for navigable purposes." The Forest Service is charged with examining these purchase areas, making a careful estimate of timber, and, if they fill requirements, recommending them to the commission for purchase. The lands may then be approved for purchase by the commission. The Secretary of Agriculture signs the checks that consummate the contract of purchase, after all matters of title are properly adjusted.

Under the sum appropriated by the Weeks law about 1,250,000 acres, according to Forest Service estimates, will be acquired in the East by 1915, when the $2,000,000 appropriated annually ceases.

IRRIGATION IN HUMID SECTIONS.

The drought which has prevailed in many parts of the East this season has caused a large demand on the department for information as to the cost and possibilities of irrigation. The irrigation investigations of the Office of Experiment Stations employs two men in the East whose time is devoted to advising farmers and truckers as to the kind of equipment needed, the cost of installation and operation, and the methods of applying water to crops.

Most of the water used for irrigation in the East is pumped from streams or wells by individual users, gasoline engines being used most commonly for power.

In the vicinity of Sanford, Fla., water is applied in underground pipes. The soil is underlaid by an impervious stratum and is of such a character that the water spreads rapidly laterally and reaches the plant roots. Where similar conditions do not exist this system is not recommended.

For truck crops which are planted so close that horse cultivation is not practicable the overhead spray is recommended. A system of perforated pipes, fitted with nozzles, placed high enough to allow of cultivation underneath, is installed. The pressure necessary for spraying the water is obtained by pumping the water into a tank elevated sufficiently to give the necessary pressure, or by pumping direct into the mains.

For field crops and orchards, or anything that is planted in rows far enough apart to allow of making furrows between the rows, surface application of water is recommended. This is much less expensive than the other system, as it requires less equipment and less power, since the water is distributed by gravity rather than under pressure.

The men referred to will gladly give advice as to the system best adapted to the needs of anyone applying for it, and as to the kind and cost of equipment.

FIRST SEIZURE OF PATENT MEDICINE UNDER THE SHERLEY AMENDMENT.

On June 14 there were seized at Denver, Colo., as result of libel filed by the United States district attorney upon request of the Department of Agriculture, eight cases of a drug product known as "Stramoline," which was labeled "A Specific for Asthma, all Throat and Lung Diseases, including Bronchitis, Bronchial Catarrh, Stubborn Coughs and Colds, also Catarrhal Conditions of the Stomach and Bowels and Tuberculosis (Consumption) in all its forms. The Greatest Restorative Agent Known."

The prosecution was based upon the charge that the product was misbranded in making claims that it was a specific for consumption, when, in fact, there was no medical agent or mixture of medical ingredients known that would cure that disease, and, further, that the product contained no ingredient capable of producing the therapeutic effects claimed for it.

This medicine had been manufactured by the Stramoline Co., Oklahoma City, Okla., and shipped on February 12, 1913, to Denver, Colo, a section sought on account of its climate by sufferers from consumption, with whom the product found a ready sale. No defense was made to this suit, and on July 23 a court decree issued for the destruction of the product. This case is noteworthy because it is the first brought under the food and drugs act as amended by the Sherley amendment, which makes it an offense to transport interstate drug products which are branded in a false and fraudulent manner.

CONDITION OF THE CROPS.

According to the figures of the Crop Reporting Board of the United States Department of Agriculture, issued August 8, there is a considerable increase over 1912 in the acreage of winter wheat, rice, and wheat in general. Of this, winter wheat shows a total acreage of 30,938,000 acres, or 16.4 per cent more than was reported for 1912. Rice shows an increase of 14 per cent in acreage, and all wheat shows an increase of 8.3 per cent. Corn, oats, rye, buckwheat, and white potatoes show substantially the same acreage as for 1912, with an increase of 1.1 per cent recorded for oats. Spring wheat, barley, and tame hay show decreases ranging from 3.7 to 2.5 per cent. Flax shows a falling off of 14.9 per cent. The condition of the apple crop is 52.2 per cent, which is about 2.3 per cent less than the 10-year average.

The estimated yields show the following conditions: Spring wheat shows a decrease of 97,000,000 bushels; the estimated yield of corn is about 453,000,000 bushels below the 1912 figures; oats, a decrease of about 390,000,000 bushels; barley, a decrease of about 56,000,000 bushels; potatoes, a decrease of about

82,000,000 bushels; tobacco, a decrease of 67,000,000 pounds; flax, a decrease of 8,000,000 bushels; and hay, a decrease of 9,000,000 tons. There are also some slight decreases shown in the estimated production of rye and buckwheat.

The increases are: In winter wheat, the preliminary estimate of which shows an increase of 11,000,000 bushels; all wheat, an increase of 14,000,000 bushels; and rice, an increase of 2,000,000 bushels.

The quality of winter wheat is 93.7 per cent, as against 90.7 per cent last year. It is, therefore, slightly higher than the six-year average, which is 91 per cent. The quality of rye is about the same as last year. The fall in the production of oats is somewhat offset by the amount of oats remaining on farms August 1, which is estimated at about 103,900,000 bushels, or about 69,000,000 more bushels than were on the farms on August 1, 1912.

GENERAL REVIEW OF CROP CONDITIONS.

General crop conditions on August 1 averaged for the United States materially lower (6.2 per cent lower) than on the same date last year, and also lower (4.5 per cent) than the average condition on August 1 of recent years. Weather conditions about August 1 were unfavorable for crops in general.

Lowest conditions are found in Kansas, with 31.6 per cent below, Oklahoma with 18 per cent, Kentucky with 13.6 per cent, California with 12.8 per cent, Illinois with 12.3 per cent, and Maryland with 12.2 per cent below average conditions. Highest conditions are in Wisconsin with 7.6 per cent, Washington with 5.3 per cent, Florida with 5.2 per cent, and Minnesota with 4.3 per cent above their average conditions on August 1. It will be observed that the good and bad spots are widely scattered.

The general or composite condition of all crops combined on August 1, or at the time of harvest, 100 representing the average (not normal) condition, in the United States was 95.5 per cent.

B. T. Galloway.

Assistant Secretary.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

VOL. I WASHINGTON, D. C., AUGUST 27, 1913 No. 3

SHIPPERS OF IMITATION CIDER VINEGAR ARE FINED $1,525

The Government has proceeded against several corporations for the adulteration and misbranding of vinegar, and notices of judgment in these suits have just been published by the Department of Agriculture.

$600 was the fine imposed on each of the defendants, Benjamin A. Place and Frederick L. Place, Oswego, N. Y., for shipment into Massachusetts of a product labeled "Not made by a Trust, Place Bros., Cider Vinegar, Extra Old-Farm Orchard Brand, Oswego, N. Y., Test No. 9." The adulteration of this product was alleged because analysis indicated that a mixture of dilute acetic acid and added ash material had been substituted in whole or in part for the pure cider vinegar. Misbranding was charged because of alleged false and deceptive statements on the label, which represented to the purchaser that the product was derived from pure cider when it was not.

In a similar case Spielman Bros. Co., a corporation of Chicago, was proceeded against by the Government and fined $100 and costs. It was alleged that a quantity of adulterated and misbranded vinegar labeled "Red Jacket Cider Vinegar, Reid, Murdock & Co., Distributors," was shipped by the defendant into Oklahoma in violation of the Food and Drugs Act. Analysis of this product by the Bureau of Chemistry indicated that a dilute solution of acetic acid and a product containing a high percentage of reducing sugars, which had been manufactured in imitation of pure apple cider vinegar, had been substituted wholly for the product.

Another case against Spielman Bros. Co., to which they pleaded guilty, resulted in another fine of $100 and costs. The alleged adulterated and misbranded product in this instance was labeled "John T. Hancock Company. Faultless Pure Cider Vinegar. 48 Gals. Dubuque, Iowa. Guaranteed cider vinegar; 4½ per centum; the Spielman Bros. Company Mfg. 361." This product was shipped from Illinois into Iowa.

A third case, to which Spielman Bros. Co. pleaded guilty, involved the alleged adulteration of vinegar sent into Indiana and labeled "Guaranteed Cider Vinegar 6 Per Centum Spielman Bros. Co., Mfrs. 5727." The defendant was fined $100 and costs.

Morgan-Abbot-Barker Co., a corporation of Louisville, Ky., was fined $25 and costs for sending into Georgia a shipment of alleged contraband vinegar bearing the label "The Morgan-Abbot-Barker Co. Distrs. Incorporated. Pure Apple Lion Brand Vinegar, Louisville, Kentucky." Adulteration of this product was alleged because it appeared that a substance had been mixed and packed with it so as to reduce and injuriously affect its quality. This substance was a dilute solution of acetic acid containing foreign mineral matter.

The total of these fines amounts to $1,525, with costs included in four of the five cases.

OFFICE OF MARKETS AND THE FORM OF COOPERATIVE UNDERTAKINGS

Numerous cooperative associations, especially in the western United States, are appealing to the Department of Agriculture to have the Office of Markets make an investigation of their particular type of cooperative enterprise. The idea apparent in their requests is that the Department proposes to recommend the form of some particular organization for general adoption throughout the United States by producers' cooperative organizations.

The Department has no such plans in view, but is desirous of securing information concerning all cooperative undertakings, wherever they may be located and with whatever products they may deal. It is interested also in consumers' organizations and cooperative mercantile enterprises.

At the request of the Department, the Civil Service Commission has recently held examinations for positions in the Office of Markets, including a specialist in cooperative organization. Sixty-four applicants satisfied the commission that they were entitled to consideration for the position. It will be sometime before the commission will be able to correct these papers and make certifications to the Department. After the specialist in cooperative organization has been selected and appointed, it is possible that this officer may, as opportunity arises, make personal observations as to the conduct and methods of some of the numerous associations in the United States to assist the Department in giving the most valuable information and advice to groups of persons desiring to effect organizations.

WHEN THE WORLD'S WHEAT CROP IS HARVESTED

"How much of the world's wheat crop is harvested each month of the year?" was asked recently of the Bureau of Statistics.

To answer this question, estimates have been made based upon the average production in recent years and

the usual progress of harvesting operations in the various countries of the world. These showed the following percentages: January, 5 per cent; February, 1 per cent; March, 3 per cent; April, 7 per cent; May, 4 per cent; June, 15 per cent; July, 34 per cent; August, 26 per cent; September, 2 per cent; October and November combined, less than 1 per cent; and December, 3 per cent.

In the United States about 19 per cent of the crop is harvested in June, 46 per cent in July, and 35 per cent in August.

From these estimates it would appear that almost no wheat is harvested in October and November, and that the world harvest season really begins in December, when operations start in Australia and South America, enlarge in January, and are practically finished in February. Operations begin in February in India, and increase in activity through March to April. In April operations begin in such countries as Persia, Asia Minor, and Mexico. The falling off in May is due to the nearness to completion of the Indian harvest, and the season's crossing the Mediterranean from North Africa to southern Europe, where harvest does not become active until June. In June, July, and August about 75 per cent of the crop is harvested. The season progresses steadily northward during these months. By September harvest operations are nearly completed. Scotland, Northern Russia and Siberia, and Canada do a little harvesting in August. Practically no harvesting is done in October.

If the world wheat crop be regarded as about 3,600,000,000 bushels, the estimates above would indicate that about 108 million bushels are harvested in December, 180 in January, 36 in February, 108 in March, 252 in April, 144 in May, 540 in June, 1,224 in July, 936 in August, 72 in September. Of course, the percentages and quantities will shift slightly from year to year, as the seasons are early or late and as production in a particular latitude is large or small. The above estimate, however, may be regarded as fairly typical.

COUNTIES BENEFIT FROM TIMBER SALES IN NATIONAL FORESTS

During the fiscal year just past national forest receipts totaled $2,500,000, of which about one-half was for timber. Contracts entered into for timber to be cut either at once or in later years aggregate $4,000,000. These figures surpass business done in any previous year by a good margin.

An interesting feature of the foregoing announcement by the Forest Service is the fact that 35 per cent of the gross receipts, or between $800,000 and $900,000, will go to the benefit of the States in which the forests are situated, for their schools and roads. This is provided for by law. It is estimated that from this source the various States have drawn over $3,000,000 in all since 1906, when for the first time a part of the forest receipts was made available for State use in school and road improvement.

The application of these laws may be observed in the timber sale now advertised by the Forest Service in the Lolo National Forest of Montana. Eighty million feet of timber will be sold, the gross receipts amounting to approximately $125,000. Under existing laws 25 per cent of this sum, or $30,000, will go to the counties in which the forest is situated, for schools and roads, and an additional 10 per cent, or $12,500, will be expended for good roads under the direction of the Secretary of Agriculture.

The volume of timber sales on national forests is shown by forest service records to fluctuate from year to year, according to general business conditions. The actual cut, however, has advanced.

Besides the income from timber there are various other sources from which the forests derive substantial amounts each year. Grazing fees paid by cattle owners for their stock which feed on the forest ranges is the chief source other than timber. Again, what are called "special uses" in the forests furnish a steady income. Examples of these uses are power sites, cottages or summer hotels, and various business enterprises, all of which pay the Government a rental, which in most cases is merely nominal. The total, however, helps swell the gross receipts appreciably.

Appropriations for the administration and protection of national forests are made directly by Congress as a part of the agricultural appropriation. The receipts from the forests, after deducting the 25 per cent for the States and 10 per cent additional spent for State roads, are turned into the National Treasury. Last year about $1,500,000 more was spent on forests than was received from them. But with the opening of the vast timbered regions, now inaccessible to lumbermen or too far from markets to be commercially available, and the development of the water power and other natural resources on Government land, forest officials feel confident that the forests will not only become self-supporting before many years, but will in time furnish to the Government an annual income of no mean size. The officials point out also that much of the present expenditure is for permanent improvements, which in later years will call only for the expense of maintenance.

HEAT AND DROUGHT IN THE WEST

Not since the great drought of June and July, 1901, has the crop damage in the western corn belt been so serious as during the present season, and it is possible that on account of the extension of the present drought into August the damage in some of the States will be greater even than in that year.

About the middle of June warm weather set in over nearly all portions of the country to eastward of the

Rocky Mountains, with the center of greatest excess of heat located near the middle Mississippi Valley, where it has continued since with scarcely any interruption except during the latter part of July, when more moderate temperatures prevailed for short periods.

During this hot spell the afternoon temperatures have been above 90° for many days in succession, passing above 100° almost daily, especially in portions of Oklahoma and Kansas, from July 5 to 20, and again during the last two days in July and the first 10 days of August. The warmest periods were from July 15 to 20 and during the second week of August, when maximum temperatures were close to 110° at points in these States.

Rainfall has been largely deficient in this region during the same period, the amounts for the two months being from one-third to one-half the normal, the deficiencies being especially large during the last two decades of July and the first decade of August.

According to the report of the Bureau of Statistics, the corn prospects in Kansas fell from a condition of 81 per cent on July 1 to 30 per cent on August 1; Oklahoma, from 87 to 44; Nebraska, from 91 to 67; and in Missouri, from 85 to 70. As practically no rain has occurred so far in August over those States, and as the heat has continued as intense as in July, it is probable that the present condition (August 15) is far worse than on August 1.

While exceptionally severe only in the States mentioned, the drought has extended into districts to the eastward. Portions of southern Illinois and southern Indiana and much of Kentucky, Tennessee, and Arkansas are now suffering severely. In Iowa few beneficial rains occurred from the middle of July till the 10th of August, the period from about July 29 to August 10 being excessively hot and trying to all vegetation.

At this time the drought and high temperatures continue in the middle and southern portions of the corn belt, the temperatures during the past day or two exceeding all previous records at points in Kansas.

ALFALFA WEEVIL NOT SPREADING RAPIDLY

The alfalfa weevil, so far as employees of the Department have been able to determine, has not spread itself over any considerable amount of territory beyond its range of occurrence last year. This enemy of alfalfa, which was imported from Europe and was first discovered by the farmers around Salt Lake City, Utah, in 1904, is still, so far as known, restricted to northern Utah, southeastern Idaho, and southwestern Wyoming. There is nothing to indicate the probability that the weevil has been or is being distributed in ordinary freight cars, passenger coaches, or Pullman cars. The only absolute proof obtained of its being transported by rail in articles of commerce is a recent finding of the beetles among potatoes shipped in refrigerator cars from points in Utah to one point in Montana.

In its war on this alfalfa weevil the department has brought over from Italy, France, and Switzerland many thousands of parasites of different species which it is believed have kept the weevil from becoming a serious pest in European alfalfa districts. These parasites are being distributed or otherwise utilized in the effort to establish them permanently in this country. Some of the parasites imported from Europe have, beyond a doubt, become established in Utah.

The department, however, is not relying wholly on these parasites. It has conducted a number of field experiments of a practical nature which have shown such good results that alfalfa growers in the infested regions have secured a fairly good crop of hay throughout the season. Some insist that they now can secure a larger annual yield of hay than they were able to do before the pest appeared.

The method of combating the weevil by cultivation recommended by the department is as follows:

Cultivation of the alfalfa fields in the fall permits the moisture from winter rains and gathering snows to penetrate the earth, while the cultivation encourages early growth, and this early and more vigorous growth anticipates the appearance of the weevils in large numbers. At present it is necessary to cut this crop prematurely, but this advances the second crop so that the latter is harvested now only 10 days later than the first crop was formerly mown for hay. After taking off the premature first crop, brush dragging and irrigation, where the latter is possible, not only reduces the numbers of the weevil but produces a much more vigorous second crop. The same follows for the third crop.

The department is also concentrating its efforts upon devising a method of reducing the number of hibernating weevils and further reducing their numbers in the spring. The department has published a preliminary report on the alfalfa weevil which can be obtained by those interested.

A LARGE PART OF ROAD BUILDING FUNDS WASTED

The Office of Public Roads of the Department of Agriculture is making a strong effort to focus the mind of the country on the fact that maintenance and effective repair are of equal importance with the actual improvement of bad roads. Investment of money in new roads does not become real economy until provision is made for keeping these new roads in condition after they are built. If a new road is built and then allowed to fall into disrepair, much of the original investment is simply wasted.

Europe, generally speaking, is ahead of the United States in the matter of road improvement, but Great Britain is struggling with a problem similar to the one that confronts the people of the United States. In England, Scotland, and Wales there are no fewer than 2,140 separate authorities who between them admin-

ister 175,487 miles of roads, or an average of only 82 miles apiece. In Scotland, apart from the big cities, there are over 200 burghs, one-half of which have but 10 miles of road apiece to maintain. Needless to say, such a minute mileage is insufficient to keep the road plant fully occupied all the year around, and renders the employment of a skilled engineer impossible for economical reasons.

Officials of the Office of Public Roads when called upon for assistance by the various States are pointing out that road building is an art based on a science, and that trained men and experienced men are necessary to secure the best results from the expenditure of road funds.

Statisticians have found that although the average expenditure on the improvement of roads exceeds $1,000,000 a day, a large portion of this money in the United States is wasted because of the failure to build the right type of road to meet the local requirements or the failure to provide for the continued maintenance of the improvement.

The various States and counties within the past six months have taken a greater interest in road improvement than ever before in the history of the United States, and there is now a strong movement to conserve the roads of the country where they are improved. Scientific maintenance will be one of the chief features of the work of the Office of Public Roads throughout the present year.

9,191 SQUARE MILES TO BE RELEASED FROM TICK QUARANTINE ON SEPTEMBER 1.

The Acting Secretary of Agriculture has issued an order effective on and after September 1, 1913, releasing from cattle quarantine for Texas fever 9,191 square miles in the states of Texas, Oklahoma, Tennessee, Georgia, and South Carolina. This means that the sections released have succeeded in eradicating the cattle tick which is the cause of spreading splenetic or Texas fever in cattle.

This release from quarantine is in addition to the 20,000 square miles released on March 1, 1913, so that this year the quarantine has been lifted in nearly 30,000 square miles of cattle-raising territory.

Since the beginning of the work of tick eradication in 1906, 196,395 square miles out of the 741,551 square miles infected have been cleaned up and released from quarantine. All of Tennessee, except a small part of Marion county, is now released as a result of the active antitick campaign in that state, whereas in 1906 a large portion of that state was in the quarantined district.

The actual portions of the several states to be released from quarantine on September 1 as a result of the order of the Secretary are as follows:

In Texas: The counties of Fisher and Jones, the remainder of Terrell and Hardeman counties, and portions of the counties of Crockett, Sterling, Mitchell, Haskell, and Knox.

In Oklahoma: The county of Nowata and portions of the counties of Washington, Osage, and McClain.

In Tennessee: The counties of Henderson, Chester, and Hardin and the remainder of Decatur, Wayne, McNairy, and Hardeman counties.

In Georgia: The counties of Newton and Oconee.

In South Carolina: The remainder of the counties of Abbeville and Chester.

PROTECTION TO BREEDERS OF LIVE STOCK

Since January 1, 1911, the Department of Agriculture has been safeguarding the interests of breeders of pure-bred horses in the United States in such a manner that there is no longer any excuse for the purchase of a stallion or mare as an imported one which is not actually imported.

The foreign (including Canadian) certificates for horses of the various recognized breeds imported for breeding purposes are submitted by importers to the Bureau of Animal Industry. The pedigrees are verified from the studbooks, and the description of the animal on the pedigree certificate compared with that reported by the bureau's inspector at the port of entry. If descriptions and pedigrees check up properly, the pedigree certificates are stamped in red ink. This stamp carries the statement that a certificate has been issued by the Bureau of Animal Industry, the date of issue of such certificate, and the department's serial number for the particular breed. These bureau certificates give customs officers the data on which animals are passed free of duty under the provisions of the tariff act.

Farmers and breeders are cautioned not to purchase or accept any stallion or mare claimed to have been imported since January 1, 1911, unless the foreign pedigree certificate for the animal offered for sale is stamped as above described. If the certificate does not bear this stamp, either the pedigree is not correct, or the description fails to agree with the animal, or the animal was not imported since January 1, 1911.

This same procedure is followed in the case of cattle, sheep, and hogs, although in some instances, notably in the case of sheep, a number of importers have preferred to pay the duty, which is comparatively small, rather than take the trouble to get certificates of pure breeding from the department.

B. T. Galloway.

Assistant Secretary.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1913

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

VOL. I WASHINGTON, D. C., SEPTEMBER 3, 1913 No. 4

In answer to its request for suggestions for improving the practical value to farmers of the Weekly News Letter to Crop Correspondents, the department is in receipt of many interesting suggestions. In each case the suggestions have been considered most carefully, and a large number of them have been made the basis for articles which will appear in subsequent issues. The department repeats the invitation to all crop correspondents to make suggestions on any points which, in their opinion, will make the Weekly News Letter of greater value to the farmer.

DEVELOPING THE USE OF WATER POWER IN THE FOREST RESERVES.

According to the estimates of the United States Department of Agriculture, the unused water power in the various national-forest reservations is capable of developing from 10,000,000 to 15,000,000 horsepower in the form of low-priced electrical current. In many of the districts adjacent to these natural sources of power there is not yet a large enough demand for current for use in existing local commercial activities to warrant power companies in paying high rentals and building expensive plants for the delivery of current to such users. It has been found, therefore, that to bring about the immediate establishment of power plants and thus to avoid the continued waste of this water power in many sections permits must be granted power companies upon terms under which the current can be developed cheaply enough to be used in developing new industries which would be unprofitable without a supply of cheap current.

Under a plan which has been agreed upon between the Secretary of the Interior and the Secretary of Agriculture, the people at large will be able to get cheap power, as the maximum rate which the power companies may charge is definitely fixed in the permit.

The departments also have surrounded their permits with provisions which prevent power companies from gaining control of these public water powers merely for the purpose of promoting the sale of stocks and bonds. The permits, therefore, have been framed to make certain that companies gaining water-power rights shall supply a given minimum of current at specified rates on or before definitely fixed dates.

In order to make certain that power companies can not exercise a monopoly and use the entire current for their own purposes, the departments require these power companies to sell at least one-half of the power they develop as rapidly as outside users request its delivery.

A CONCRETE ILLUSTRATION.

A concrete illustration of the application of this policy is the agreement recently entered into by the Department of the Interior and the Department of Agriculture with the International Power & Manufacturing Co. for the development of the natural water power on the Pend d'Oreille River, Idaho. In the district around this water-power site there is at present no demand on the part of private consumers for large amounts of current. This company, however, demonstrated that if it could obtain a satisfactory permit it could use at least one-half the possible power successfully for the manufacture of nitrates in the district. After very careful investigation, the departments decided to issue a permit to this company which would encourage it to develop this power for its own use and make available a surplus of power for private users, electric roads, etc.

Under the terms of this permit this company must erect and operate, within three years, a plant capable of developing regularly at least 50,000 horsepower of the 120,000 horsepower which can be developed at this point. The rental per horsepower charged to the company during the time it develops only 50,000 horsepower will be four times the rental per horsepower that will be charged when it develops the full 120,000 horsepower. This gives the company a direct incentive for increasing its power development, and therefore adding to the surplus which it can supply to private users.

CONSUMERS PROTECTED.

Under the terms of the permit the company must sell at least one-half of the developed horsepower, or so much of this one-half as is actually demanded, to private consumers.

The maximum price that the company can charge for power supplied to private users is 6 cents per kilowatt hour. If it charges private users the full 6 cents per kilowatt hour, the company then must pay to the Government the maximum rental. If, on the other hand, the company supplies its power to private consumers at a figure lower than 6 cents per kilowatt hour, the rental demanded by the Government will be proportionately reduced. In other words, the lower the price charged by the company for its current, the lower will be the rental for water power collected from the company by the Government.

The term of rental is made indeterminate, but definite provision is made for readjustment to meet the requirements of the then existing regulations at the expiration of every 20 years. This enables the Gov-

ernment to meet future requirements that result from developments in the district thus supplied with current. The Department of Agriculture, therefore, has made certain that as the demand for current increases because of the further settling of the district, the opening of electric roads, etc., the company can not exercise a destructive monopoly and charge private consumers a rate that is excessive in proportion to the company's investment, operating expenses, and rental.

At the same time, under this new plan, power companies which would be wholly unwilling to invest large capital in building power plants under the ordinary form of permit revocable at the will of the Secretary of Agriculture, are willing under this new system of an indeterminate period with readjustment every 20 years to invest their capital to build power plants and private current mains, and in that way develop and use the water-power resources of the country.

TENTATIVE GRADES FOR CORN FORMULATED.

Under authority from Congress contained in the agricultural appropriation act which authorizes the Secretary of Agriculture to fix definite grades for grain, the United States Department of Agriculture, through its Office of Grain Standardization of the Bureau of Plant Industry, has completed the necessary investigations to justify the fixing of definite grades for commercial corn. On the basis of these investigations the following tentative grades for corn have been formulated. With the view to having the public fully informed regarding the grades before they are finally adopted their publication has been authorized by the Secretary. Prior to the final fixing of these grades by the department a formal hearing will be held in Washington the latter part of September or some time during October, the exact date to be announced later.

Tentative grades for commercial corn formulated by the United States Department of Agriculture.

Grade classification—white, yellow, and mixed corn.	Maximum percentage of moisture.	Maximum percentage of damaged corn, exclusive of "heat damaged" or "mahogany" corn.	Maximum percentage of foreign material, including dirt, cob, finely broken corn, other grains, etc.	Maximum percentage of badly broken or "cracked" corn, not including finely broken.
No. 1	14.0	2	1	2
No. 2	15.5	4	1	3
No. 3	17.5	6	2	4
No. 4	19.5	8	2	4
No. 5	21.5	10	3	5
No. 6	23.0	15	5	7
Sample	See general rule No. 6 for sample grade.			

GENERAL RULES.

1. The corn in grades No. 1 to No. 5 must be sweet.
2. *White corn*, all grades, shall be at least 98 per cent white.
3. *Yellow corn*, all grades, shall be at least 95 per cent yellow.
4. *Mixed corn*, all grades, shall include corn of various colors not coming within the limits for color, as provided for under white or yellow corn.
5. In addition to the limits indicated, No. 6 corn may be musty, sour, and may also include corn of inferior quality, such as immature and badly blistered.
6. All corn that does not meet the requirements of either of six numerical grades by reason of an excessive percentage of moisture, damaged kernels, foreign matter or badly broken corn; or corn that is hot, heat damaged, fire burnt, infested with live weevil, or otherwise of distinctly low quality, shall be classed as sample grade.
7. In No. 6 and sample grade, reasons for so grading shall be stated on the inspector's ticket or certificate.
8. Finely broken corn shall include all broken particles of corn that will pass through an 8 by 8 mesh wire sieve, the diameter of the wire to be twenty-five thousandths of an inch.
9. Badly broken or "cracked" corn shall include all broken pieces of kernels that will pass through a 4 by 4 mesh wire sieve, the diameter of the wire to be thirty-six thousandths of an inch, except that the finely broken corn as provided for under rule 8 shall not be considered as badly broken or "cracked" corn.
10. It is understood that the damaged corn; the foreign material, including cob, dirt, finely broken corn, other grains, etc.; and the badly broken or "cracked" corn, as provided for under the various grades, shall be such as occur naturally in corn when handled under good commercial conditions.
11. Moisture percentages, as provided for in these grade specifications, shall conform to results obtained by the standard method and tester as described in Circular 72, Bureau of Plant Industry, United States Department of Agriculture.

NOTE.—Acidity: The grain standardization investigations of the department have shown that the "degree of acidity" is a most important factor in determining the soundness of corn, and likewise its safety for storage and for shipment. While the results of these investigations clearly indicate that the acidity test affords a means of accurately measuring the quality or degree of soundness of any given lot of corn, it has not been included in the grade requirements for the reason that neither the grain inspection departments nor boards of appeal are familiar with or equipped for making such determinations in commercial grading. The results likewise indicate that sound corn of good quality does not exceed 22 c. c. in acidity; that corn with an acidity in excess of 26 c. c. has already undergone partial deterioration and is unsafe for storage; while corn showing an acidity of 30 c. c. or over is distinctly of inferior quality, such as would in almost every instance be classed as sample grade under the present system of grading. The degree of acidity, as herein expressed, represents the number of cubic centimeters of tenth normal alkali solution required to neutralize the acid in 100 grams of corn.

PASTEURIZING MILK AT LOW TEMPERATURES.

In order to determine the best way of pasteurizing milk so as to kill the disease germs and yet not give the milk a cooked flavor or lessen its nutritive value, the Department of Agriculture, through its Dairy Division, has been conducting a series of experiments, treating milk at different temperatures and for different lengths of time. According to the report on these experiments in Bulletin 166 of the Bureau of Animal Industry, when milk is pasteurized at 145° F. for 30 minutes the chemical changes are so slight that it is unlikely that the protein (muscle building element) or the phosphates of lime and magnesia are rendered less digestible than they are in raw milk.

Moreover, from a bacteriological standpoint, pasteurizing at low temperatures is found to be more satisfactory than pasteurizing at high temperatures. According to Bulletins 126 and 161, where low temperatures are used the majority of bacteria that survive are lactic acid organisms which play an important part in the normal souring of milk. When milk is efficiently pasteurized at high temperatures, the bacteria which survive are largely of the putrefactive kinds, and milk so treated if kept for any length of time has a tendency to rot instead of sour. From the standpoint of economy, the technologist of the Dairy Division finds that pasteurizing at low temperatures calls for less

heat. It is found that it takes about 23½ per cent less heat to raise milk to the temperature of 145° F. than to a temperature of 165° F. A similar gain is a saving of the ice needed, because it will require 23½ per cent more refrigeration to cool milk to the shipping point when it is pasteurized at the higher temperature. The department, therefore, recommends that "When market milk is pasteurized it should be heated to about 145° F. and held at that temperature for 30 minutes."

NEW PUBLICATIONS ISSUED IN AUGUST.

The Federal Horticultural Board has issued Plant Quarantine Decision No. 4, amending Regulation 7, relating to foreign certificates of inspection. The amendment announces that permits to import nursery stock from any given country may be refused when it is found that the foreign inspection of the stock is merely perfunctory, and such a country shall then be classed as one which does not maintain nursery stock inspection.

The Bureau of Animal Industry has revised to April 1, 1913, its table of legal State standards for dairy products, which is issued as Circular 218 of that bureau. This bureau announces its approval of tobacco dip of prescribed strength, without sulphur, for use in the official dipping of cattle for scabies. (Amendment 9 to B. A. I. Order 143.) An article on Malta fever, with special reference to its diagnosis and control in goats, appears as Circular 215 of the same bureau, reprinted from the Twenty-eighth Annual Report of the Bureau of Animal Industry.

A directory of Federal and State officials and organizations (including Canadian), concerned with the protection of birds and game, revised to July 15, 1913, comes from the Biological Survey as Circular 94.

The cultivation of American ginseng is treated in Farmers' Bulletin 551, contributed by the Bureau of Plant Industry. An article on the cultural character of the chestnut-blight fungus and its near relatives appears as a separate reprint from Circular 131 of the same bureau.

The Office of Public Roads, in its Circular 100, furnishes typical specifications for the fabrication and erection of steel highway bridges.

The 1912 Yearbook, which contains a number of papers on various subjects, has just been issued. From time to time these papers are published as separates, and as they deal in many cases with subjects of general interest, few of them are noted here.

There is a timely paper on How the Produce Dealer may Improve the Quality of Poultry and Eggs, which is sent out as Separate 596. Another paper dealing with marketing practices is entitled "A Successful Method of Marketing Vegetable Products," No. 597. There is a paper of much interest to the southern cotton grower, Separate 605, Improved Methods of Handling and Marketing Cotton. The department has for a number of years been developing improved methods of marketing cotton, and the results to date are set forth in this paper.

The movement of farmers into the arid areas has made necessary information regarding the handling of lands in those areas. Separate No. 608 deals with the subject of the Settlement of Irrigated Lands and sets forth the conditions that the farmer in these regions must meet and suggests methods of handling such problems.

UNITED STATES KEEPS OUT UNDESIRABLE PLANTS.

To protect fruit growers and farmers of the United States the Federal Horticultural Board of the Department of Agriculture has declared a quarantine against certain imported plants, fruit, and seed. Some of the most destructive insect and plant diseases to which our cultivated plants are subject have been brought here, according to the board, on stock imported from foreign countries.

Certain fruits from the Hawaiian Islands have been refused admittance from the fact that the Mediterranean fruit fly, not heretofore widely prevalent in the United States, exists in large numbers in the Territory of Hawaii. This insect attacks figs, grapes, grape fruit, sweet limes, oranges, peaches, and other fruits, as well as certain vegetables, and would be, if it were admitted to the United States, a menace to the fruit and vegetable growers of the country.

Potatoes from Germany, Holland, and the British Isles can not be imported into the United States as long as the quarantine declared in September, 1912, exists against them. This quarantine was decided upon to keep out the deadly plant disease called "potato wart," a scourge so dangerous that should it get into our potato-growing districts the effect upon the industry would, according to plant pathologists, be little short of a national calamity.

From Egypt, India, and the Hawaiian Islands the United States has been in the habit of importing quantities of cotton seed. The discovery of the pink boll worm in the cotton seed from those countries has resulted in the declaration of a quarantine.

On January 16, 1913, a quarantine was declared against oranges, sweet limes, peaches, and some other fruits from Mexico. On February 19, 1913, grape fruit was added to the list of prohibited fruits. The discovery of the existence in that country of a destructive insect known as the "Mexican fruit fly" was responsible for this action.

WINTER LEGUME COVER CROPS FOR THE SOUTH.

This is the season when southern farmers should plant a winter legume in their corn and cotton fields. That such crops have high value is established beyond all question. They furnish a cover that prevents much leaching and erosion; they add nitrogen to the soil directly; and when plowed under in the spring, they supply humus upon which a continuous supply of nitrogen

depends. For this purpose, the southern farmer has a choice of three goods crops; namely, crimson clover, bur clover, and vetch. Crimson clover has done wonders in building up the soils of the coastal States from New Jersey to South Carolina, and its use is increasing greatly each year. Outside of this region it has been neglected, though in all of the Southern States the crop succeeds well when a stand is secured. The principal difficulty in obtaining a stand in the cotton belt is when dry weather prevails at planting time; namely, from August 15 to as late as October 15. Fifteen pounds of seed per acre between the rows of cotton or corn will, under favorable conditions, give a stand. Farmers' Bulletin 550 discusses in detail the growing of crimson clover.

Bur clover is nearly equal to crimson clover in the South so far as growth is concerned and superior in the case of obtaining a stand. If strips of bur clover are permitted to mature seed, it will volunteer year after year when once well established. An excellent discussion of the crop is given in Alabama Bulletin No. 165.

Hairy vetch is another splendid winter cover crop. It will outyield either crimson clover or bur clover, but the seed per acre costs more. Dry fall weather interferes but little in obtaining a stand of vetch, as the seed will survive in the ground for a considerable time. This crop is fully discussed in Farmers' Bulletin 515 and B. P. I. Circular 102.

With all of these legumes, inoculation is a prime requisite when grown for the first time. If soil from an old field of the same legume can not be secured, the appropriate artificial cultures prepared by the department will be sent on request. *Begin this year by growing one of these three legumes.*

A SCHOOL FOR LEADERSHIP IN COUNTRY LIFE

A unique course has been established in the summer school of Cornell University which has for its purpose the preparation of young people for leadership in country life.

It is announced that there will be a three-year graded course and training will be provided for all classes of rural leaders, such as rural ministers, secretaries of young men's and young women's Christian associations, officers of men's brotherhoods, boy-scout masters, school superintendents, teachers, editors, officers of granges, institute lecturers, and other persons who occupy positions of leadership and influence throughout the open country.

There has also been granted to Cornell by the legislature the sum of $334,000 for the construction of buildings in the agricultural college. This will provide for the completion of the auditorium, forestry building, animal-husbandry building, heating plant, and additional small buildings for the poultry department, and for the erection of barn for hogs and sheep, a hothouse, and a new rural schoolhouse.

CARE SHOULD BE EXERCISED IN DISPOSITION OF DEAD ANIMALS AFFECTED BY TRICHINOSIS

The bodies of dead dogs and cats, according to Danish specialists, should always be disposed of in such a way as to insure their harmlessness, for both animals are liable to the disease of trichinosis. Although the per cent of those infected is relatively small, great harm could result if the bodies were left where other animals might be contaminated.

Interesting statistics have recently been issued by a Danish periodical with regard to the prevalence of this disease in dogs and cats. It is stated that of 500 dogs and 100 cats examined during a period ranging over four months, only 0.4 per cent of the dogs and 2 per cent of the cats were affected with trichinosis.

The present Danish researches show that the disease is on the decline in Denmark among these animals. The decline is probably due to the inspection of pig's flesh for trichinosis. This is assuming that dogs and cats are infected exclusively or mainly by the flesh of trichinous pigs. It is expected that the disease will diminish still further in Danish dogs and cats if in the future all pigs are submitted to compulsory inspection.

SEIZED BABY REMEDY CONTAINING CODEIN.

One gross of Russell's White Drops shipped by the Russell Medical Co., Providence, R. I., have been seized under the food and drugs act in Boston, Mass. The charge against these goods is that the label stated that the product was "a safe and effectual remedy for babies and children teething" when, in fact, it was not an effectual remedy for such condition and the quantities of codein and alcohol present rendered it entirely unsafe for use by infants. There was alleged to be misbranding also because the maker failed to declare on the label properly and entirely the amounts of alcohol and codein, a derivative of morphine, that were present.

SELECTED FOR ARMY REMOUNT COMMITTEE.

The Secretary of Agriculture has announced the selection of Mr. James L. Gay, of Kentucky, to fill the vacancy caused by the lamented death of Mr. Charles L. Railey, on the department's committee of experts appointed to assist in the selection of stallions to be used in the Army remount breeding work.

Mr. Gay is appointed as the saddle-horse representative on this committee. He has had a life-long experience in the breeding of American saddle horses, is a judge of wide reputation, and is a director of the American Saddle Horse Breeders' Association.

B. T. Galloway.

Assistant Secretary.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1913

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

VOL. I WASHINGTON, D. C., SEPTEMBER 10, 1913 No. 5

TO GIVE FARMERS CROP NEWS BY TELEGRAPH.

In order to give to the farmer immediate news of crop conditions in his own State, and information by which he can compare the state of crops in his own State with the general crop condition throughout the Nation, the department about the middle of September will make a test experiment with a new system of circulating crop information by telegraph. Heretofore there has been no way whereby the farmer in a given State could get information as to the crop conditions in his State as shown by the Government Crop Report promptly enough to be of immediate service to him. The abbreviated summary of the crop conditions of the United States which was given out to the press associations and newspaper correspondents on the day of the completion of the Monthly Crop Report applied, as a rule, to the whole country and did not give the farmer of an individual State the detailed information about local conditions which were important to him in the management of his produce.

The detailed statement giving information by States has hitherto been furnished to the farmers of the several localities in printed form and only by mail. As a result, it took from 7 to 10 days for this information to reach the farmers in distant States through the post offices. This information, the department realizes, to be of real value to the farmers must reach them without delay.

The department, therefore, in order to get this news quickly into the hands of farmers, in September will put into effect a test experiment in six States, viz, Illinois, Missouri, Minnesota, Iowa, Kansas, and Texas. Under this plan the crop news for each of these States will be telegraphed to a central point in that State. There the information will be quickly reproduced and mailed to all the newspapers in the State. In this way every paper, not merely the large dailies, but the county seat and small town papers, should be in possession of this information within from 12 to 18 hours after it is issued. As far as possible the information will be sent out so as to reach the small weeklies in time for use in their Thursday and Friday editions.

This new service has been effected through a cooperative arrangement between the Bureau of Statistics and the Weather Bureau officials. In each State the Weather Bureau has a man provided with modern facilities which will enable him to print and mail the telegraphed facts to every newspaper within a few hours. The printed matter thus circulated will give these newspapers (*a*) a full list of the crops; (*b*) the average condition of each crop for 10-year periods in that particular State; (*c*) the condition of the State crops for September 9. In the adjoining column will be given the same data for the United States, so that the farmers who read these notices can compare the crops in their States as of September 9 with the 10-year averages of their own State, and, in the same way, with the average condition throughout the United States on September 9 and for 10 years.

These data are given for the reason that the condition of crops actually within a State has more effect on prices within that State than the conditions for the country at large. For example, if a farmer in a given State is informed that the condition of corn in his State for September is 55, as compared with a State 10-year average of 80, or as compared with an average of 75 for the whole United States for September, or an average of 85 for the whole United States for a period of 10 years, he will see at a glance that the situation, so far as corn is concerned, in his own State is somewhat serious. This will enable him to plan accordingly.

The cost of this service, it is found, will be only nominal. All that will be necessary will be to telegraph the figures for two columns, and this can be done at a cost of not more than 75 cents for each State.

If the contemplated experiment is a success and the newspapers cooperate by publishing this special service information, the plan will be extended eventually to serve the farmers of all the States.

AN IMPORTED ADULTERANT OF WHITE AND ALSIKE CLOVER SEED.

There is being offered to the seed trade in the United States from European sources a mixture of seeds under the names of *Trifolium angulatum* and *Trifolium parviflorum*, which is similar in color and general appearance to a mixture of alsike and white clover seed.

The seeds are slightly smaller than those of alsike or white clover, but can be easily distinguished under a magnifying glass by their rough surface as contrasted with the smooth surface of alsike and white clover seed.

This mixture has no recognized commercial value in this country and will doubtless either be sold as white and alsike clover seed or used as an adulterant of these seeds.

Some of this seed has been imported at a price approximately one-half that of alsike and one-fourth that of white clover seed and an attempt has been made to sell it as a mixture of white and alsike clover.

All purchasers of mixtures of white and alsike clover seed should examine them carefully to see that they are free from this seed.

THE CONSUMER'S DUTY IN CARING FOR MILK AFTER IT IS DELIVERED.

CARE OF BOTTLED MILK.

No matter how carefully milk is handled by the farmer or delivery agent between the farm and the home, or in how pure a state it is actually delivered at the domestic ice box, it quickly can become an undesirable food if carelessly handled in the home. Milk that is left for only a short time in summer heat may become unfit for use.

Milk will quickly become contaminated when exposed to the air, or when placed in unclean vessels. Though some bacteria are always present, even in the best grades of fresh milk, they are generally harmless provided their numbers are small and they are not of the disease-producing type; but milk must be kept cool to prevent the bacteria already in it, and which may get in by accident, from multiplying to a point where the milk is undesirable. Producers and dealers have done their duty if they have left at the door a bottle of clean, cold, unadulterated milk free from the bacteria which cause disease. The consumer must then do his part, if he wants clean, wholesome milk for himself and his family.

Consumers should take milk into the house and put it in the refrigerator as soon after delivery as possible, particularly in hot weather. If it is impossible to have the bottles of milk put immediately into the refrigerator, they should provide on the porch a box containing a lump of ice. In planning a house it is wise to have the refrigerator set in the wall with an opening on the outside. Locks can be provided for these boxes or refrigerator doors and one key given to the milkman. The interior of the food compartment should be wiped every day with a clean cloth and thoroughly scalded at least once a week. Under no circumstances should the drain pipe of an ice box be connected with a sewer.

The consumer should keep the milk in the original bottle, and the bottle should be left in the refrigerator until needed. Before the cap is removed the neck of the bottle and the cap should be washed and then carefully wiped with a clean cloth. The cap should be removed with a sharp-pointed, clean instrument, so as not to push it down into the milk. Once a bottle is opened, it should be kept covered, both to keep out dirt and bacteria and to prevent absorption of undesirable odors. The original cap should never be replaced. Instead an inverted clean cup or tumbler should be placed on the top of the bottle. The milk should be used from the bottle as needed. Unused milk should not be returned to the bottle after having once been poured into another vessel. Consumers should not allow milk to stand in a warm room or on the table any longer than is necessary. Milk should not be kept in a refrigerator compartment with onions or foods having strong odors.

Before returning the bottles to the milkman, the consumer should always wash them first in cold water and then in warm water. Milk bottles should not be used for holding vinegar, kerosene, or any substance other than milk. Milk bottles should never be taken into a sick room, because infectious diseases can be spread through a milk bottle returned to the farm and delivered to some other home. This is a civic duty that every one owes to his neighbors. If there is a case of typhoid fever or other serious communicable disease in the house, the fairest thing to do for one's neighbor is to provide one's own clean bottles or covered dishes into which the milkman can pour the milk from his bottle. If bottles are left in such a home, the milkman should not be allowed to collect them again until they have been properly disinfected by the board of health. At any rate, if there is a serious sickness in the home, all milk bottles should be boiled before being sent out of the house.

HOW CONSUMERS SHOULD HANDLE BULK MILK DELIVERED AT THE HOME.

Milk dipped from a can or drawn from the faucet of a can may be a source of danger, and should be avoided where it is possible to get bottles of milk. The air of city streets and houses is laden with dust and bacteria, and frequently with particles of filth. Even if the milk is clean in the milkman's receptacle, the repouring of it into an open vessel or pitcher for the customer gives an excellent chance for floating disease germs to get into the milk.

If he can not obtain bottled milk, the consumer should try to have the bulk milk delivered personally to some member of the family, who should receive it in a thoroughly scalded covered vessel that has not been exposed to the air of a room or the street. Otherwise he should set out a scalded covered dish or bowl, or a glass preserving jar with a glass top without a rubber band. In no case should an uncovered vessel be used. Milk should be taken into the house and put in the ice box immediately on delivery, or if this is impossible, it should be placed in an outside refrigerator or ice box, or box containing a lump of ice. Cleanliness in the handling of milk is as necessary in the home as it is in the actual production of milk on the farm. Milk must be kept at low temperature at all times to prevent growth of bacteria and subsequent souring. It should be kept in closed vessels as far as possible. The consumer should see that the milk after delivery suffers no additional contamination.

HOW CONSUMERS SHOULD KEEP MILK WHERE ICE IS SCARCE.

To aid persons who find ice difficult to obtain to keep their household milk in better condition than if it is allowed to stand around in heated rooms, the

dairy experts of the department have issued the following recommendations:

If it is impossible to procure ice, the milk bottle can be kept cooler than the surrounding air by keeping it in a jar or pail of running water. Where it is impossible to use running water from a faucet, wrap the bottle in a damp cloth and put it in a current of air. This method will keep the milk a few degrees cooler than if left simply in the air. The use of ice, however, is always preferable.

GOVERNMENT WINS INSECTICIDE CASES.

The United States Department of Agriculture has just issued notices of judgment obtained under the insecticide act against a product known as Wonder Fly Killer, a product known as Tarola, and a product known as Nico Fume.

The first case was against the Watson Co., Peru, Ind., for the alleged shipment and delivery for shipment from the State of Indiana to the State of Illinois of a quantity of an insecticide known and designated as "Wonder Fly Killer." The insecticide was labeled as follows: "It never fails. Wonder Fly Killer. Keep Wet. Manufactured by the Watson Company, Peru, Ind. Contains Metallic Arsenic 10.18% in soluble condition. Inert materials 89.82%."

Analysis showed that it contained less than 10.18 per cent metallic arsenic. Adulteration was charged in that it fell below the professed standard and quality under which it was sold. Misbranding was alleged because the label stated that it contained 10.18 per cent metallic arsenic, whereas it contained only 8.52 per cent. The defendant company entered a plea of guilty and the court imposed a fine of $50 and costs.

The second case was against the Barrett Manufacturing Co., Philadelphia, Pa., for shipment from Pennsylvania to Georgia of a quantity of an insecticide called "Tarola." The product was labeled "One Gallon Tarola. A Coal Tar Creosote Animal Wash and Disinfecting Fluid. Guaranteed by Barrett Manufacturing Co. under the Insecticide Act of 1910, Serial No. 52. Inert Matter (Water) 13%. Barrett Manufacturing Co., Chemical Department, Frankford, Philadelphia, Pa., Manufacturers of Coal Tar products."

Analysis of the product showed that the cans contained less than one gallon of the article. Misbranding was alleged because the said cans contained only 0.9346 of a gallon. The defendant entered a plea of non vult contendere and the court imposed a fine of $5.

The third case was against the Kentucky Tobacco Product Co., Louisville, Ky., for the alleged shipment and delivery for shipment of a quantity of an insecticide designated "Nico Fume Liquid" from the State of Kentucky to the State of California. The product was labeled "Nico-Fume Liquid. A Nicotine Solution Consisting of Free Nicotine blended with Water. Active Ingredients, Nicotine 40%, Inert Ingredients, 60%. ¼ Pint 50¢. Original Package guaranteed to weigh not less than 4¼ oz. net, and to contain not less than 743 grains of Nicotine."

Analysis of this product showed that it contained a much less percentage of nicotine than 40 per cent. Adulteration of the article was charged in that it fell below the professed standard of percentage of nicotine under which it was sold, because it contained less than 40 per cent of nicotine as stated. Misbranding was charged in that the label was false and misleading for the same reason, and because the label did not name and state plainly and correctly the percentage amounts of each and every inert ingredient, nor, in lieu thereof, the label did not state plainly the correct percentage amount of the ingredient (nicotine) having insecticidal properties and the correct total percentage of inert ingredients present. The defendant entered a plea of guilty to the information, and the court imposed a fine of $25 and costs.

PUBLICATIONS OF THE WEEK ENDING AUGUST 26.

A new order defining the area quarantined on account of Texas fever in cattle (B. A. I. Order 199) has the effect of releasing from quarantine certain counties in Texas, Oklahoma, Tennessee, Georgia, and South Carolina. The order gives also general provisions outlining the manner in which the quarantine is enforced.

The Experiment Station Record for August, 1913, contains, as usual, abstracts of reports of experiments, not only those made by stations in this country, but foreign experiments also. This periodical is a reliable guide to the current agricultural research of the world. Editorials and news notes add to its interest.

The complete list of Farmers' Bulletins, brought down to August 20, may be had upon application to the Secretary of Agriculture or the Chief of the Division of Publications.

Three notices of judgment under the food and drugs act were issued during the week (Nos. 2511, 2513, and 2516). One notice concerned the misbranding of a lemon extract, a vanilla extract, and a salad dressing and meat sauce; one related to the misbranding of a drug-habit cure; and the third concerned an adulteration of milk.

The Bureau of Soils publishes the Soil Survey of Jefferson County, New York. This gives detailed descriptions of the various types of soil and shows their locations on a large map of the county, in colors. The New York State College of Agriculture cooperated in the work.

The statistics of live stock and the miscellaneous agricultural statistics from the Yearbook for 1912 are reprinted as Yearbook Separate No. 615.

BOTS HARMFUL TO THE HORSE.

Contrary to the prevailing opinion among farmers, the bot which infests the stomach of the horse is often harmful to both young and old animals, and may be especially disastrous to colts. The bot is the larval stage of the horse botfly. The botfly reproduces by depositing light yellow, oval eggs, which are attached by the adult female to the hair of the legs, breast, and neck. The eggs hatch; then the horse licks itself and some of the small larvæ are taken through the mouth into the stomach, where they attach themselves firmly to the lining.

By their parasitic tendencies a large number of bots covering the lining of the stomach damage the interior of that organ, prevent digestive action, and in some cases cause the horse to remain in such a poor condition that death may ensue. It is probable that many cases of poor condition in horses thought to be due to worms are really due to heavy infestation with bots.

A very effective treatment which will remove bots within 24 to 48 hours is as follows: The day preceding the treatment a small amount of hay and a moderate amount of oats is given in the morning; in the evening food is withheld and a purgative given—Barbados aloes, 1 ounce; or raw linseed oil, 1 pint. The day of the treatment, at 6 o'clock in the morning, give 3 drams of carbon bisulphid in a gelatin capsule; at 7 o'clock repeat the dose in the same manner; and at 8 o'clock give the third and last dose, making in all 9 drams of carbon bisulphid in three gelatin capsules.

The above treatment is for the adult horse. For a yearling colt half the quantity of carbon bisulphid used for a mature horse will give the desired results.

If properly administered, the gelatin capsule reaches the stomach intact, but soon dissolves, and the carbon bisulphid rapidly evaporates, suffocating all bot larvæ and other parasites with which it comes in contact, but not injuring the horse. Worms are quite often expelled as well.

This remedy has been used by the Department of Agriculture with a large number of animals, and has proved successful.

LOW-GRADE IMPORTED ORCHARD GRASS SEED.

A number of shipments of orchard grass seed have recently been imported into the United States which contain only about 25 per cent of orchard grass seed, the balance being mostly chaff.

The import price of this seed is such that it can not be recleaned but must be sold either in the condition in which it is imported or mixed with other seed. There is enough seed contained in these shipments to seed approximately 10,000 acres, and not more than a quarter of a stand can be expected where the low-grade seed is sown.

DEPARTMENT TO ISSUE AN AGRICULTURAL OUTLOOK FARMERS' BULLETIN.

In organizing the work of the Bureau of Statistics the department has developed a number of plans to make the information gathered for this bureau more effective and to place it speedily in the hands of the farmers. The Crop Reporter has been discontinued, and in lieu of it the department plans to issue once a month during the crop-reporting period a farmers' bulletin which will be called "The Agricultural Outlook."

This farmers' bulletin will contain a summary of the crop conditions throughout the country for the calendar month prior to its issue. Six to eight printed pages prepared by the Chief or Acting Chief of the Bureau of Statistics, and issued over his own signature, will be devoted to giving data of crop conditions. This information will be prepared in a purely popular way with the design of enabling the farmer to determine at a glance just what plant-crop and animal-crop conditions are prevailing in his own State as compared with other individual States and the country at large and important foreign producing area.

The first bulletin of this kind will be issued during September, 1913. In that number there will probably be a complete discussion by specialists of the cotton situation at that time, with particular reference to conditions at home and in the foreign cotton fields.

This number also probably will contain a brief chapter by the Chief of the Weather Bureau on weather conditions throughout the country and their relation to crops in general. The Chief of the Bureau of Plant Industry will contribute a concise chapter on the apple situation of the country; the Assistant Chief of the Bureau of Plant Industry will write on the potato situation; the Chief of the Biochemic Division of the Bureau of Animal Industry will write on hogs and the prevalence of hog cholera.

The combined data thus published, it is expected, will make this farmers' bulletin of about 16 to 20 pages directly useful to the farmer by giving him carefully collected information of the kind that he ought to have in his conduct of the business of farming. The farmer, heretofore, has not been given much direct aid in the conduct of business matters directly connected with his work. In the past the farmer, according to the information collected by the department, has had to content himself largely with doing the work of actual production. The business man or manufacturing concern who limited his attention solely to the productive end of his business could not hope to succeed. This farmers' bulletin, it is expected, will be issued very promptly and put into the mail not more than two days after the completion of the monthly crop reports.

B. T. Galloway.

Assistant Secretary.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1913

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

VOL. I WASHINGTON, D. C., SEPTEMBER 17, 1913 No. 6

THE DEPARTMENT AND RURAL SANITATION.

Dr. Carl L. Alsberg, Chief of the Bureau of Chemistry, United States Department of Agriculture, recently delivered an address before the American Public Health Association on the limitations of the federal food law and need for rural sanitation.

Following is an abstract of his remarks:

The 48 States must rigidly inspect and control all easily contaminated foods and drugs produced within their borders. These include such foods as milk and other dairy products, water, fish, shellfish, many meat products, candy, and, indeed, all food that is eaten raw or shipped exposed to the air. Each State owes this protection both to its own citizens and to those of other States who buy its products.

The individual State must guard the health of the State. The Federal authorities can not do this work for the States. The Federal authority, under the food and drugs act, extends only to food products entering into interstate commerce, and transmission of disease through infected food and water is not wholly an interstate matter. Disease frequently is of local source and local spread.

FOOD AND DRUGS ACT LARGELY AN ECONOMIC MEASURE.

The food and drugs act as administered in the past has been very largely an economic measure. It has, to be sure, prevented very largely the mixing of active poisons in hurtful quantities with food products, but its particular work has been to see that food products are properly branded, so that the consumer knows what he is getting and is not cheated into paying a high price for a product adulterated with a cheapener. This must, of course, always be one of the purposes of the act; but we must not be deceived into believing that this very important economic function of the act is of great hygienic significance. Misbranding does not demonstrably affect the death rate of the country. If the efforts devoted to prevention of misbranding were to be concentrated more largely upon the suppression of the traffic in contaminated milk, meat, vegetables, and other products that may carry disease, a positive reduction of the country's death rate would inevitably result. At best, however, the Federal authorities under the food and drugs act can deal only with such of these bacteria-carrying products as chance to enter interstate commerce.

FOOD AND DRUGS ACT USEFUL MAINLY TO BIG CITIES.

The help that the Federal inspectors can extend to the rural communities is absolutely limited to those settlements which happen to be near the borders of the State, and so receive some of their easily contaminated foods through interstate commerce. The rural communities in the hearts of the States seldom obtain these unlabeled and possibly dangerous foods through interstate shipment. They get their food of this kind almost wholly in domestic commerce. Their milk comes from near-by farms. Their meats, if not slaughtered locally, come from near-by cities. Their fish and shellfish may be shipped to them from sea-food centers in the nearest large towns within their State borders.

RURAL POPULATION OF 49,000,000 WITHOUT COMPLETE FOOD PROTECTION.

In many States the large cities are the only points which have any real sanitary protection. Our rural population of 49,000,000 people, including the 30,000,000 who live on farms, with the exception of those fortunate rural dwellers in one or two exceptional States which regard the health of the country people as also important, receive very little State health protection, and maintain no local protective system of their own against contaminated local milk, meat, shellfish, fish, or vegetables. Moreover, only a small number of these rural inhabitants are safeguarded by competent inspection against polluted water supply or sewage-disposal methods dangerous to health and life.

To prevent the sale in large or small communities of milk or other food products that are dirty or prepared in dangerous, disease-breeding places, it is absolutely necessary that uniform standards of bacteriological cleanliness, as well as chemical composition, be established. Bacteriological control is absolutely necessary to prevent the spread of contagion. * *

The probability is that there are upward of 70,000,000 out of our 91,000,000 people who have no efficient and systematic protection from the major causes of the spread of typhoid, tuberculosis, deadly intestinal diseases of infants, scarlet fever, septic sore throat, trichinosis, and other ailments resulting from the circulation of disease-producing organisms.

LICENSE OF PHYSICIANS SHOULD BE CANCELED FOR FAILURE TO REPORT CONTAGIOUS DISEASES.

We must not let ourselves be blinded by statistics, for the statistics of disease in the United States are notoriously unreliable. For certain sections no attempt whatever is made to collect them. I need not tell an audience such as this that reliable statistics are the basis of all health protection. Until severe penalties are inflicted for failure to report cases of infectious diseases, until failure to do so results in the cancellation of the license to practice medicine, there will be no really reliable statistics. And this will only be brought about when the State health services throughout the land furnish a permanent career for life instead of being, as they are but too often at present, a side line of politics—medical or otherwise. And these services should furnish a career, like the Federal civil service, to sanitary engineers and chemists as well as to physicians. The people must learn that their health is too valuable to intrust to temporary health officers or to

physicians who devote to the discharge of their duties as health officers only such irregular moments as can be spared from their private practices.

RURAL DEATH STATISTICS INACCURATE.

The sections of the country in which, as already stated, little or no attention is paid to keeping records of disease are rural. The large cities keep some sort of record, because attention to health protection and to easily contaminated foods is centralized almost wholly in the cities. With rare exceptions the effectiveness of the protective work depends on the individual city rather than on a State-wide law or a State-wide and efficient health-inspection system. Therefore, the collective figures of urban deaths look more significant; but if we could make an accurate total of the deaths on farms from the same causes the figures would be appalling. In the country a man dies of "fever" or a "cough." The cities would announce that he died of typhoid or tuberculosis. In the country babies fed on bad milk just die. In the city they die of accurately defined intestinal disorders, and when the infantile death rate mounts rigid milk inspection follows. In the cities typhoid is often traced to its source and protective measures invoked. In the country the dangerous well or infected food supply usually continues to work havoc.

DEPARTMENT CAN HELP RURAL COMMUNITIES NEAR STATE LINES.

The Department of Agriculture feels that it should give more attention to the protection of these rural communities. This means that the work hitherto largely confined to detection of the presence of preservatives in labeled foods which do not carry organic diseases, and the prosecutions for misbranding which might work a monetary fraud on the consumer, should be widely and rapidly extended to the control of interstate commerce in the dangerous unlabeled foods which can transmit and which do transmit serious diseases.

Plans for extending this work to interstate shipments of milk all over the country have already been made. It is the plan of the department to do more than exercise merely police control over interstate shipments. Plans have been made at the same time to show the milk producer how to produce better milk, and also to show him that it will pay him to produce his milk under the best conditions.

The only help that the department's work in the rural communities around the State's edges can be to the country districts in the heart of the State is to educate, through example and by means of publicity, the rural population throughout all the States to demand of the State that it extend to them the same protection now enjoyed by the large cities against preventable disease disseminated through their food. It is along these lines that the State officials can cooperate with the Federal Government. The actual detection and closing of dirty or insanitary factories and dairies, or the compelling of their owners to mend their methods must, however, rest with the States.

VALUE OF A BUCKET OF WATER WHEN FIRE STARTS ON THE FARM.

In probably not one out of a thousand American farmhouses or barns is a bucket of water kept in a handy place ready for use in case of fire emergency; yet so effective is a handy bucket of water when fire starts that the insurance underwriters grant a lower rate of insurance to manufacturers and merchants who will keep a specified number of filled fire buckets in certain locations in their buildings. Frequently a cupful of water at hand when a blaze starts as a tiny flame is more valuable in preventing fire loss than a whole fire department 10 minutes later. A single bucket of water dashed soon enough on blazing curtains or draperies, or a small blaze starting in rubbish or hay, will put out a fire before it has opportunity to gain headway, and thus may be the means, not only of saving a building and its contents and preventing the death of stock, but even save loss of human life.

Most people rely on a pump or water tap as a source of water when fire breaks out. In the excitement following an outbreak of fire it frequently is difficult to locate buckets, and the delay of two or three minutes necessary to fill a bucket at a pump or tap may be enough to give the fire a chance to get into the walls, or spread to a point where it is very difficult to quench.

Every household should be equipped with a fire bucket, provided with a cover, filled with water, and used for no other purpose. The best type of bucket is one with a rounded bottom, which prevents its sitting on the floor, and so makes it useless for ordinary household work. These buckets should be painted red, and should be filled at regular intervals to replace water lost by evaporation. For the same reason, buckets provided with covers are better than open buckets and prevent dust and other material from getting into the water and making it unpleasant. One such bucket at least ought to be provided on every floor of the house or barn. They should be located near the stairs or entrances to the building, so that those rushing in from the outside or starting for the stairs can get them without delay.

The rounded bottom buckets can be kept either in a bench with a hole cut in it to receive the bucket, or else can be suspended out of reach of children, from a metal or wooden bracket.

These buckets are particularly important in winter when pumps or taps may freeze. As a general rule the fire risk is greatest in cold weather, because that is the time when the stoves and furnaces are made as hot as possible to keep the house warm. In the case of the barn, the water in these buckets can be kept from freezing, except at temperatures below zero, by adding 2 pounds and 1 ounce, or slightly over 2 pounds, of fused calcium chloride to each gallon of water. This calcium chloride must not be confused with the ordinary chloride of lime, the bleaching powder. The calcium chloride is very inexpensive and both keeps the water from freezing at temperatures above zero and also prevents rapid evaporation. With this mixture in his fire buckets, the farmer, except in case of unusually low temperature, has always at his command

the means of checking the start of a fire in his barns. The cost of such fire-protection apparatus on farms is so slight, compared to the loss it may save, that no farmer should neglect this precaution.

At the same time, no matter how good the fire-fighting apparatus on a farm may be, the owner and his employees should not, for that reason, become careless or permit smoking in barns or other dangerous practices because they think they have at hand the means to extinguish a fire. All home owners should be particularly careful to keep lamps so far from woodwork, curtains, or other inflammable material that there is no danger of the direct flame or heat setting fire to anything. Open candle flames or other open flames are particularly hazardous. Piles of trash or papers or other waste in yards around buildings or left in cellars are especially dangerous. The same is true of all oily rags or waste which may lead to a fire by spontaneous combustion.

TOMATO CANNERS WARNED NOT TO ADD WATER TO CANNED TOMATOES.

There seems to be a general misunderstanding in certain localities regarding what constitutes adulteration of canned tomatoes, and for this reason many may find interesting and enlightening a repetition of the Department of Agriculture's Food inspection decision on this subject.

The can in any canned food product serves not only as a container but also as an index of the quantity of food contained. It should be as full of food as is practicable without injuring the quality or appearance of the contents.

Tomatoes are a food product which may be canned without the addition of any other substance; therefore the addition of water is deemed adulteration. Pulp has been discovered prepared from trimmings, cores, and other waste material, which was added to canned tomatoes. This pulp is not a normal ingredient of canned tomatoes and is, therefore, adulteration.

Also, if in the canning of a lot of tomatoes more juice is added than normally would be present, the same is considered an adulteration in the opinion of the Board of Food and Drug Inspection.

A number of decisions have been handed down in favor of the United States in suits brought against companies that have shipped in interstate commerce canned tomatoes adulterated with pulp or an excessive amount of juice. To prevent any unwitting violation of the law by others, who may be ignorant of what adulteration of canned tomatoes is considered to mean, these particulars are once more called to the public's attention.

STUDYING WORLD WEATHER.

The phenomena of the atmosphere know no national boundaries. A storm raging in western Canada to-day may sweep over the Dakotas to-morrow, and strew the shores of the British Isles with wrecks in the course of the next week or two.

Aside from such obvious globe-trotting on the part of the weather, there is a considerable amount of more subtle interplay between atmospheric phenomena in widely separated regions of the earth, the recognition of which is one of the newer developments of meteorology. For example, the state of the barometer in the interior of Siberia in winter is found to be related in an intimate way to the movement and intensity of storms in the United States at the same season. There are even more striking correlations, in virtue of which certain meteorological conditions in a certain part of the world at one season give some clue to the prevailing weather of another part of the world during a later season.

Even in the daily routine of assembling weather reports by telegraph and entering them on charts to serve as the basis of forecasts, cooperation between adjacent countries is essential. For years the United States Weather Bureau has exchanged daily reports by telegraph with the meteorological services of Canada and Mexico, while all the countries of Europe exchange with one another in the same way. Recently the tendency has been toward enlarging still further the scope of the weather map.

A few years ago the United States Weather Bureau inaugurated the experiment of making a daily telegraphic weather chart of the Northern Hemisphere, and this chart has now become indispensable to the forecaster. Recently a similar chart has been made every day at Toronto by the Canadian meteorologists, while in Europe a plan is on foot to prepare daily weather charts for the whole of Eurasia. Wireless reports from ships are rapidly filling up the former gaps in such charts over the oceans.

The interesting work that our Weather Bureau has done in exploring the upper air with kites and balloons is an integral part of a distinctly international undertaking. Such work would add but little to our knowledge of the atmosphere if it were confined to a single country.

The fact is that practically all meteorological problems are international, and the effectiveness of our Weather Bureau depends very much upon its intimate relations with similar institutions abroad.

A central organization, known as the International Meteorological Committee, the members of which are all directors of national weather services, serves to direct the cooperative work of meteorologists throughout the world. This body holds triennial meetings. There are also a number of international commissions charged with the oversight of particular lines of work in meteorology. One, for instance, with headquarters at Strassburg, directs the international survey of the upper air.

CANADA THISTLE CAN BE ERADICATED BY CLEAN CULTIVATION.

Many farmers in their efforts to kill the noxious Canada thistle abandon their efforts with success in sight and the thistles soon recover, says H. R. Cox, in Farmers' Bulletin No. 545, which the Department of Agriculture has recently sent out.

The man is of far more importance than the method in eradicating this weed, which is a pest from Maine to Kansas and in the Pacific coast States. While the South is not liable to be affected, there seems to be danger of its spreading into the Rocky Mountain States. So serious and so general have its inroads proved that in 25 States the thistle is proscribed as a noxious weed and the law directs its killing or destruction in such a manner as to prevent the maturing and dissemination of seed.

Canada thistles can be eradicated in a comparatively short time with little or no loss in the use of the land provided the following rules are observed:

1. Deprive the thistles of their tops continually, thus exhausting the roots. The top of the plant serves much the same purpose as the lungs of an animal, so that if the plant is continually deprived of that it must soon die. There is no one best method of keeping down the tops. Each field must be handled according to circumstances. Usually some form of clean cultivation is the best either with a crop or by bare fallow.

2. Outline a systematic plan of attack.

3 Keep the plan in mind at all times and follow it faithfully.

Alfalfa, clover, the grasses, millet, sorghum, hemp, buckwheat, and small grains are all crops adapted to the purpose of smothering the Canada thistle. They restrict the top growth of the thistles by shading them and also crowd the roots. Alfalfa is probably the best for this purpose. The land should be occupied by such crops at all times so that the thistle may have no chance to recover. This method is of most value in giving the weed a setback which renders easier the work of clean cultivation which should follow.

The method of salting the thistles in pastures is adapted to small patches accessible to live stock, especially sheep. In their efforts to get the salt the stock nibble the thistles and trample them to death. It seems best to let them grow until they start to bloom and then cut off the tops close to the ground and apply a small handful of salt to each new shoot that springs up. Permanent eradication of this weed by plant poisons has not proved very practicable.

Thistles that occur on waste lands may be prevented from maturing if their tops are cut off just as the blossoming starts. Two cuttings a year are usually necessary to prevent seeding. Thistles in such locations, however, can be entirely eradicated if the work is thorough. Various types of cultivators equipped with knives or sweeps that are effective in cutting off the tops of Canada thistles are shown in the new bulletin by the department's agriculturist.

FEED STUFF ADULTERATORS FINED $20 AND COSTS.

Among the most recent notices of judgment issued by the United States Department of Agriculture is one against the Mountain City Milling Co., Chattanooga, Tenn., for the adulteration and misbranding of feed stuff. The company pleaded guilty and was fined $20 and costs.

The feed stuff in question was shipped from Tennessee to North Carolina and was labeled: "Mountain City Mill Co., Ship stuff or feed meal. Chattanooga, Tenn. 40% better than corn for horses, cattle and hogs. 80 lbs. Guaranteed under the Pure Food and Drugs Act, June 30, 1906. Serial No. 4597. (Inspection tag on bag) 80 lbs. Ship stuff product of Wheat and Corn. Protein minimum per cent 13.00 fat minimum per cent 5.50. Crude Fibre minimum per cent 7.00, Sugar and Starch minimum per cent 60.00. Mountain City Mill Co., Chattanooga, Tennessee."

Adulteration of the feed stuff was alleged because it did not contain ship stuff or feed meal, but consisted of a ground wheat product, containing approximately 30 per cent corn bran, which is not a normal constituent of ship stuff.

Misbranding was alleged because the label stated such product to be ship stuff, whereas it was not ship stuff.

FOUL GASES ABSORBED BY GRAPES

A German botanical journal has noted a case where trees, garden plants, and vineyards have shown damage resulting from their proximity to chemical works. Emanations from these works deposited powder on the foliage. Analyses of the powder showed that oxalic acid or its salts made up nearly one-third of it and that sodium compounds were also present. The leaves seemed especially sensitive on their lower sides.

The wine from grapes grown in the neighborhood of the chemicals possessed a peculiar taste that was attributed to their absorption of the foul gases permeating the air.

B. T. Galloway,

Assistant Secretary.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1913

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

VOL. I WASHINGTON, D. C., SEPTEMBER 24, 1913 No. 7

PRICES FARMERS RECEIVED FOR MARKET MILK DURING 1912.

The Dairy Division of the U. S. Department of Agriculture, through Ernest Kelly, who is in charge of market milk investigations, has just completed an investigation of the prices paid for milk to farmers supplying 26 of the leading cities in the United States during the year 1912. According to these figures the lowest average price for the year paid to farmers for milk delivered at the country railroad stations was 2.904 cents per quart, in St. Paul, Minn.; and the highest average price for the year was 4.437 cents per quart paid in Washington, D. C. The average price paid in the 26 cities was 3.565 cents per quart.

The figures also show considerable variation in the prices paid for milk at different seasons of the year. In Washington, D. C., for example, during May, June, July, August, and September, the farmers received only 3.469 cents per quart, while from October to December they were paid 5.175 cents per quart. The lowest price paid for milk was 2.27 cents per quart in St. Louis in May. In Washington the figure of 5.175 for October, November, and December was the highest average price paid to farmers.

In estimating the prices paid to the farmers the investigator reduced all prices to a common unit, namely, the net price per quart, f. o. b. at the farmer's shipping station. To arrive at this unit, in cases of milk shipped direct to city dealers the steam-road freight rate was deducted, so as to leave the net price that the farmer received for milk delivered at his own shipping point. In the case of trolley-shipped milk the actual net price probably would be a little higher than the average, because the trolley rates run from 1 to 1½ cents per gallon. In cities where different dealers pay different rates to farmers the prices paid have been averaged. It was impossible to obtain the total quantities of milk supplied to the various cities, therefore the average prices for the months and for the year are not absolutely exact, for the reason that a larger number of quarts of milk are produced and sold during the months of low prices than during the other months.

The appended table shows the net prices in cents per quart received by shippers at their shipping stations for market milk shipped to various cities during 1912. This table was prepared from figures supplied by milk dealers in the various cities.

Net prices (in cents per quart) received by shippers of market milk to various cities during 1912.

City.	Percentage of fat.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Average for year.
Baltimore, Md.	4.10	4.542	4.458	4.375	3.875	3.708	3.708	3.708	3.708	4.042	4.458	4.625	4.625	4.153
Boston, Mass.	3.65	4.075	4.021	3.910	3.564	2.982	2.807	3.602	3.874	3.910	4.217	4.424	4.424	3.818
Buffalo, N. Y.	3.17	3.813	3.813	3.438	3.438	3.028	3.028	3.053	3.053	3.690	3.690	3.857	3.857	3.449
Chicago, Ill., bottlers	.....	3.978	3.871	3.548	2.796	2.288	2.151	2.796	3.118	3.226	3.441	3.758	3.871	3.235
Chicago, Ill., shippers	.....	4.005	4.095	3.781	3.313	2.531	2.375	3.000	3.313	3.469	3.625	4.095	4.095	3.482
Cincinnati, Ohio	4.00	3.545	3.545	3.394	3.254	2.652	2.652	2.652	2.775	3.115	3.254	3.394	3.515	3.143
Cleveland, Ohio	3.50	4.033	3.926	3.926	3.122	2.907	2.799	2.861	3.014	3.149	4.087	4.194	4.194	3.523
Denver, Colo.	4.00	3.835	3.578	3.400	3.490	3.405	3.145	2.975	2.975	3.233	3.405	3.578	3.663	3.398
Des Moines, Iowa	3.80	3.750	3.750	3.750	3.500	2.750	2.750	2.750	3.500	3.500	3.500	3.750	3.750	3.417
Detroit, Mich.	3.50	3.602	3.602	3.387	3.172	2.635	2.415	2.904	3.118	3.334	3.656	3.817	3.925	3.207
Indianapolis, Ind.	4.00	3.505	3.505	3.505	3.505	2.643	2.643	2.643	2.643	2.643	2.643	3.505	3.505	3.074
Louisville, Ky.	4.00 to 5.00	4.250	4.250	4.250	3.750	3.000	3.000	3.000	3.000	3.000	4.250	4.500	4.750	3.750
Memphis, Tenn.	4.00	4.500	4.500	4.500	4.000	4.000	4.000	4.000	4.000	4.000	4.500	4.500	4.500	4.250
Milwaukee, Wis.	3.70	3.530	3.530	3.220	3.063	2.750	2.750	3.063	3.690	3.690	3.690	3.690	3.690	3.383
Minneapolis, Minn.	3.50	3.275	3.100	3.050	2.850	2.550	2.275	2.500	2.900	3.150	3.500	3.600	3.750	3.042
Newark, N. J.	3.00	3.925	3.950	3.575	3.175	2.800	2.550	2.800	3.250	3.250	3.550	3.800	4.175	3.400
New Orleans, La.	4.00	4.625	4.625	4.625	4.125	4.125	4.125	4.125	4.125	4.125	4.625	4.625	4.625	4.375
New York, Borden	(1)	4.194	4.086	3.763	3.226	2.639	2.366	2.796	3.656	3.656	3.871	4.086	4.086	3.540
New York, exchange	.....	4.250	4.130	3.750	3.500	3.250	3.000	3.258	3.500	3.500	3.750	4.000	4.250	3.673
Omaha, Nebr.	3.60	3.587	3.587	3.587	2.837	2.837	2.837	2.837	2.837	2.837	3.587	3.587	3.587	3.212
Philadelphia, Pa.	3.97	3.914	3.842	3.496	3.389	3.281	2.828	3.102	3.246	3.317	3.735	4.033	4.033	3.518
Pittsburgh, Pa.	3.50	3.780	3.780	3.458	3.217	2.720	2.586	2.858	2.966	3.208	3.610	3.807	4.013	3.334
Portland, Oreg.	3.20	4.183	3.882	4.015	3.559	3.380	3.602	3.774	4.097	4.247	4.215	4.285	4.393	3.962
San Francisco, Cal.	3.50	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	3.932
Seattle, Wash.	3.80	4.624	4.194	3.710	3.656	3.441	3.441	3.548	3.656	3.871	4.301	4.301	4.301	3.920
St. Paul, Minn.	3.25	3.300	3.050	2.800	2.550	2.550	2.300	2.550	2.800	3.050	3.300	3.300	3.300	2.904
St. Louis, Mo.	3.59	3.916	3.780	3.464	2.985	2.270	2.355	2.534	2.741	3.000	3.378	3.735	3.937	3.175
Washington D. C.	4.00	5.094	5.094	5.094	5.094	3.469	3.469	3.469	3.469	3.469	5.175	5.175	5.175	4.437
Average, by months	.....	3.988	3.910	3.743	3.426	3.019	2.925	3.114	3.320	3.450	3.820	3.999	4.067	3.565

[1] Above State standard.

[2] Uniform price throughout the year.

Much of the milk is bought at a straight price per gallon or per 100 pounds, with the single stipulation that the fat content shall be above the local legal standard. There also exists, however, in some places sliding scales under which so much per point is added or deducted for milk testing over or falling below the set standard.

One of the most encouraging features of the past year has been the fact that several dealers have begun to pay attention to the quality of the milk and are

offering extra inducements to the farmer who produces milk of a higher sanitary grade. The Borden price quoted in the table, from April to December, inclusive, includes a premium of 10 cents per 100 pounds to dairies which score 68 points or above on the New York City department of health score card. Where farms are found in an insanitary condition, this 10 cents per 100 pounds is deducted. The New York Milk Exchange prices for November and December, as shown in the foregoing table, are for grade C milk. The prices for grade B would be a quarter of a cent a quart above these prices from November 10 to the end of the year.

The line on the following table shows graphically the variations of the average prices for the 26 cities in the different months:

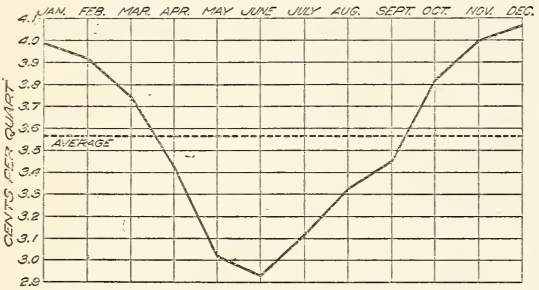


Diagram Showing the Variations of the Average Prices per Quart for Milk Paid to Farmers Supplying the 26 Cities.

GOLD AND SILVER MEDALS OFFERED TO CHILDREN FOR BEST ESSAY ON REPAIR AND MAINTENANCE OF EARTH ROADS.

(Crop correspondents are earnestly requested to communicate information on this contest to their local school authorities with a view to getting the children of their districts to compete in this prize-essay contest.)

The director of the Office of Public Roads of this department, Logan Waller Page, has announced that the time in which children may submit essays on the repair and maintenance of earth roads, in competition for the gold medal and the two silver medals, has been extended to March 2, 1914.

The conditions for the essay contest are as follows:

1. The subject of the essay will be the Repair and Keeping Up of Earth Roads.
2. It is open only to children from 10 to 15 years, inclusive, who are actually living on farms and who are actually attending some school.
3. The essay should be not more than 800 words in length, in the handwriting of the child, and should be written on only one side of the paper.
4. In the upper left-hand corner of the first page should appear the following statement: Essay on Earth Roads by (name of child; age of child; actual residence of child; school attended by child).
5. Children wishing to enter this contest may ask the advice of their parents, teachers, neighbors, highway commissioners, and other people, and read books or magazines giving information about the subject. They must not give the information they gain in this way in the exact words of an adult or the author of a book. They must express the ideas in their own language. They will not be expected to use technical terms, and any words that make the meaning clear will be acceptable.
6. The essays will be rated by an impartial committee according to the understanding of the subject shown by the child and according to the penmanship, English, and spelling. The writer of the best essay will receive a gold medal; the writer of the next best essay, a silver medal; and the writer of the third best essay, a silver medal.
7. All essays should be plainly addressed, in an envelope stamped with a 2-cent stamp, to "Committee on Children's Road Essay Contest, Office of Public Roads, U. S. Department of Agriculture, Washington, D. C.," and should be mailed to reach that office not later than 9 a. m. on Monday, March 2, 1914.
8. Children who have already submitted essays in that contest which was originally announced to close October 15, may, if they wish, submit a second essay.

As a help to children the suggestions given below are made. Children need not follow these suggestions absolutely. They must not submit essays in the form of direct answers to these questions. They must not quote any of the following material word for word.

HOW TO TELL A GOOD ROAD FROM A BAD ROAD.

To the Children: In getting facts to write your essays for the prize contest on the repair and maintenance of earth roads use your eyes. Look at a bad piece of road and a good piece of road when both are dry. Study particularly the ruts and holes and uneven places in the road to see whether they make it easier or harder for the wheels of a loaded wagon to go along. Study the kind of footing that the two roads give to the horses.

Now study the same stretches of road after a good rainstorm. You will see that one road holds small puddles or pools of water that keep the road soft and so allow it to be cut up by the wheels of the wagons and the hoofs of the horses. How do road builders keep water from gathering on the traveled way of a road? Should the road slope to the side ditches? How much higher should the center or crown of the road be than the outside edges of the road? Why do good ditches at the side of the road help make the center of the road better for hauling? What happens when ditches get full of rubbish or weeds? When a ditch along a road holds water or collects it into pools how does this injure the road?

USING A DRAG ON EARTH ROADS.

Have you ever seen a homemade road drag? It is made by splitting in two a log 6 or 8 inches in thickness and about 6 or 8 feet long. The two halves of the log are set 3 feet apart with their smooth faces forward and upright. They are fastened together with braces. A pair of horses is hitched to a chain fastened to the front half of the log. Should these logs be drawn straight down the road or should they be dragged at a slant so that a little of the loose earth will slide toward the center of the road? Should the dragging be started next to the ditch or at the center of the road? Should you drag the whole road in one way or drag each half of it in an opposite direction? Should the dragging be done when the road is dry or after it has rained? A good strong pair of horses with a well-built drag can drag about 3 or 4 miles of road in a day. What would it cost a farmer to drag 4 miles of road? How would he be repaid for the cost of his labor?

Remember, children, you are not to answer these questions as if you were writing an examination paper. You are to think about the answers and ask people for information and watch people actually working on roads and then write a composition that will be just the same as if you were writing a letter to a friend, telling him or her how they made the earth road near you better and kept it from getting full of holes, ruts, and puddles.

MAY BEETLE EXPECTED TO BE UNUSUALLY ABUNDANT IN 1914.

A very conservative estimate places the damage to corn, timothy, and potatoes in Iowa, Wisconsin, and Illinois done by the common white grubs in 1912 at not less than $7,000,000. This estimate resulted from a personal survey by John J. Davis, scientific assistant, Bureau of Entomology, whose interesting pamphlet on the Common White Grub was recently issued as Farmers' Bulletin No. 543 by the Department of Agriculture.

The damage to the same crops in other infested areas can not be figured at less than $5,000,000, which brings the total loss, exclusive of strawberries, nursery stock, lawns, and miscellaneous crops to not less than $12,000,000 for one year. Injury was sustained in almost every section of the country north of the Ohio River from the Atlantic Ocean to South Dakota.

Observations seem to make it quite certain that in the northern States the total life cycle of this injurious species is three years. May beetles were unusually abundant in 1908 and 1911 and the grubs caused the greatest damage in 1909 and 1912.

There is a general belief, which is erroneous, that the common white grubs of the field and the white grubs found in manure heaps and rotten logs are identical. The grubs of May beetles are not known to breed in refuse of any kind.

The grub of the southern green June beetle is also commonly mistaken for the more serious pest. The grub of the June beetle seems to prefer fertilized soils and may also be distinguished from the true white grub by its peculiar method of crawling on its back.

Farmers in the regions infested last year will find it of special value to do deep plowing this fall. Ordinarily the best time to plow is between October 1 and 15. The grubs will at this time have changed to pupæ and adult beetles. These pass the winter in cells, and if the cells are disturbed their inhabitants will be destroyed.

It is important to remember that plowing should not be delayed until cold weather, for then the grubs will have gone down to their winter quarters beyond the reach of the plow.

An infested field may be thoroughly freed from grubs by pasturing it with hogs, and this method should be followed wherever possible. Hogs will root to a depth of a foot or more in search of grubs. For infested lawns hogs are efficacious but are not usually desirable, as they tear up the sod.

Domestic fowls—turkeys in particular—are preferable for lawns, and if given the run of infested fields when the land is being plowed will destroy large numbers of grubs. Pasturing of hogs to root out these grubs should not be delayed later than the middle of October nor practiced earlier than April or May, since in winter the grubs are probably too deep in the ground to be reached.

The May beetles usually deposit their eggs in fields of grass, timothy, and small grains, especially in the vicinity of timber where they feed. The crops planted in these fields the year following a season of beetles should be those least susceptible to grub injury. Such crops are small grains, buckwheat, clover, alfalfa, and peas. There is no authentic record of the grub attacking these crops. In 1914 a maximum acreage of such crops as corn and potatoes should be planted, as this will be in general a season for beetles rather than grubs. These should be kept thoroughly cultivated during the flight of the beetles (May and June). Land which is planted to small grains, timothy, and other crops which cover the ground with vegetation at this time should be planted in fields farthest from trees.

Liberal applications of commercial fertilizer will assist grass in overcoming grubs if there are not too many of them. When a lawn is badly infested the sod should be removed and the grubs gathered by hand, after which fall plowing will probably prove satisfactory. In Europe cheap labor is often employed to gather grubs after the plow, especially where the grubs are numerous.

LETTER TO HOUSEWIVES OF CROP CORRESPONDENTS.

Within a short time crop correspondents will receive a letter addressed "To the Housewives of Crop Correspondents." They are requested to hand these letters to the women in charge of their households, with the suggestion that the request therein contained be considered carefully with a view to supplying information that will assist the department in improving its service to women on the farms.

THE FLOODS OF 1913 IN THE OHIO VALLEY.

The Weather Bureau has just completed a rather comprehensive report upon the floods which devastated portions of the Ohio valley in March, 1913.

It will be remembered that the primary cause of these floods was the occurrence of an unprecedented rainfall crowded into the space of three or four days. The bulk of the rain fell over Ohio and Indiana, where the rivers and small streams were soon filled to overflowing. In some cases the overflow water swept through populous cities, causing enormous loss of life and property. From whatever aspect viewed the floods in the smaller streams far surpassed all of previous authentic record for those regions.

The report presents in some detail the data of rainfall and river stages during the flood period, as well as considerable information regarding previous floods in the Ohio. The recent flood wave in that river is traced from Pittsburgh to Cairo, which point was reached in the early part of April. Continuing thence down the Mississippi the flood reached New Orleans on May 13, or 47 days after its origin on the headwaters of the Ohio.

In point of magnitude the flood of the present year in the Ohio probably ranks second, being overtopped only by the midwinter flood of 1884. In the lower Mississippi the crest stages attained at this time exceeded all previous records between Cairo and Helena. With regard to its duration and the volume of water carried, however, the flood of 1912 in the lower Mississippi exceeded that of 1913, while the amount of land then overflowed was much greater than in the present year.

The total money loss due to the flood, including loss to railroad, telegraph, and telephone lines, was about $163,000,000. Of this amount, more than 70 per cent was sustained in the States of Ohio and Indiana. The loss to farms and farm property, including prospective crops, was about $11,000,000.

CONCRETE SILOS SHOULD BE COATED WITH COAL-TAR MIXTURE.

The field men of the dairy farming investigations of the United States Department of Agriculture have recently been giving careful attention to methods of improving concrete silos so as to prevent the drying out of silage near the walls and to protect the concrete from the action of silage juice.

They find that the concrete silo has given universal satisfaction among the farmers provided it is properly built, of good material, well reinforced, and set on a good foundation. The walls, however, as ordinarily built, are porous, and silage near the walls of the silo is apt to dry unless the inside of the silo is given a coating of some material that will fill the pores in the concrete. In the case of a large number of concrete silos in the South and West the field agents of the division applied with a brush an inside coat of raw coal tar thinned with gasoline. This coat made the silos air tight and also protected the concrete from the action of the silage juice.

Silage juice, in some cases, affects concrete very little, but in other cases, especially in silos in which broken limestone was used for aggregate, the corrosive effect of silage juice is quite marked, especially around doors which do not fit tightly.

Coal tar thinned with gasoline seems to afford excellent protection to keep the acid from affecting the concrete. If the corn has been cut at the right stage and is of the right degree of maturity and the silage is well packed, there will be very little, if any, spoiled silage near the walls. Coal tar can also be used successfully for coating the inside of stave silos.

BIRDS CAUSE INJURY TO CALIFORNIA ALMONDS.

A bird known as the Lewis woodpecker is reported to have caused considerable injury to almonds in the Capay Valley, California, one grower sustaining a loss of 10 per cent of his crop. The woodpecker by nature is a high-mountain bird. In stomach examinations of 5 woodpeckers taken in an almond orchard, over 65 per cent of the food eaten was made up of small pieces of almond.

The California blue jay is also mentioned as being by far the worst pest of the almond orchard.

900 HIGH SCHOOLS IN OHIO ARE TEACHING AGRICULTURE.

One of the agricultural supervisors of Ohio has recently stated that after a year and a half of the law requiring agriculture to be taught in the common schools of that State, more than 900 high schools are teaching agriculture and more than a half million boys and girls are studying the subject in the public schools.

It is estimated that about 4,000 teachers took work in agriculture in the summer schools last season.

B. T. Galloway.

Assistant Secretary.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1913

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

Vol. I WASHINGTON, D. C., OCTOBER 1, 1913 No. 8

THE FUNDAMENTAL PRINCIPLES OF GOOD FARMING.

The following matter is taken from a circular on "Fall Breaking and the Preparation of the Seed Bed," issued September 16, 1913, by the Farmers' Cooperative Demonstration Work of the Bureau of Plant Industry:

Upon the inauguration of the Farmers' Cooperative Demonstration Work in the Southern States it was found necessary to outline some of the fundamental principles of good farming and to insist that the tillers of the soil should become familiar with them and practice them as a first step in the betterment of farm life. These principles follow:

(1) Prepare a deep and thoroughly pulverized seed bed, well drained; break in the fall to a depth of 8, 10, or 12 inches, according to the soil, with implements that will not bring too much of the subsoil to the surface. (The foregoing depths should be reached gradually if the field is broken with an ordinary turning plow. If a disk plow is used, it is safe to break to the above depths at once.)

(2) Use seed of the best variety, intelligently selected and carefully stored.

(3) In cultivated crops give the rows and the plants in the rows a space suited to the plant, the soil, and the climate.

(4) Use intensive tillage during the growing period of the crops.

(5) Secure a high content of humus in the soil by the use of legumes, barnyard manure, and farm refuse.

(6) Carry out a systematic crop rotation with a winter cover crop on southern farms.

(7) Accomplish more work in a day by using more horsepower and better implements.

(8) Increase the farm stock to the extent of utilizing all the coarse food and idle lands of the farm.

(9) Produce all the food required for the men and animals on the farm.

(10) Keep an account of each farm product, in order to know from which the gain or loss arises.

Nature's plan of improving soils is to use a cover crop of weeds, grass, shrubs, or trees and to subsoil by sending the roots down 1, 2, 3, or 4 feet, as the case may be, thus airing and enriching the subsoil without bringing it to the surface.

In the Farmers' Cooperative Demonstration Work the importance of a deep and thoroughly prepared seed bed, like a garden, has been most widely demonstrated. Thousands of tests have been made each year by exact and painstaking farmers to an extent that leaves no possible room for doubt as to the great value of a deep and thoroughly prepared seed bed.

Concretely stated, a deep, thoroughly pulverized seed bed filled with humus has the following advantages:

(1) It provides more food, because it increases chemical action and multiplies bacterial life in a larger body of soil.

(2) It stores more moisture and it loses its moisture less rapidly on account of its cooler lower strata and the presence of more humus.

(3) It increases the number and length of roots that a plant will throw out.

(4) It allows plants to root deeper and find permanent moisture.

(5) It largely obviates the necessity of terracing, because it holds so much water in suspension that heavy rainfalls will go to the bottom and be held by the drier earth above until they can be absorbed by the subsoil.

(6) Humus enables the soil to store more moisture, increases its temperature, makes it more porous, furnishes plant food, stimulates chemical action, and fosters bacterial life.

EXCEPTIONS TO GENERAL RULES FOR DEEP FALL PLOWING.

(1) Never plow below the line of standing water in the soil, because the subsoil can not be pulverized in water. The water level must first be lowered by drainage.

(2) Do no deep fall plowing on deep, light sandy land, and this especially applies to elevated sandy table-lands which drift in windy weather. Such lands can be helped by adding humus and, except in semiarid regions, by using a winter cover crop.

(3) The object of deep fall plowing is mainly to increase the supply of plant food and the storage of moisture in the soil. While this preparation is of great value on rolling lands and in nearly all fields so long in cultivation that plant growth is medium or less, there are some soils that for the production of cotton better not be deep fall broken, such as very rich and moist river bottoms and the virgin black-land prairies of the Gulf States, for the evident reason that too much plant food for cotton is already available in the soil, with abundant moisture—conditions that make for an excessive growth of the cotton stalks and a consequent decrease in fruitage—even under ordinary conditions. For the cotton crop upon such lands it is better to plow very shallow in the spring and bed upon the firm soil.

(4) Do not plow deeply or subsoil in the spring. The subsoil is generally too full of water, and it is too late for much effective action of the air upon the soil and for the winter rains to firm the subsoil before planting cotton.

(5) Where the land is level, with a stiff subsoil, it should be broken into ridges from 5 to 10 feet wide with deep water furrows having a good outlet for drainage. On the gray post-oak flats, stiff bottom, and coast lands this practice should be followed. This will give drainage, reduce washing, and deepen the loose soil so that air and warmth may better do their work of preparation for plant growth.

WINTER MANAGEMENT.

In case no winter cover crop is used the level land should be disked or harrowed two or three times during the winter, provided it is dry enough. Give good drainage to all parts of the field.

Any cultivation done after the deep fall breaking should be shallow—not more than 3 or 4 inches deep.

This circular can be obtained without charge on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

10141°—13

THE NEW LAW ESTABLISHING A STANDARD BARREL AND STANDARD GRADES FOR APPLES IN BARRELS.

At the request of crop correspondents, the following text of (H. R. 21480) "An act to establish a standard barrel and standard grades for apples when packed in barrels, and for other purposes," is published:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the standard barrel for apples shall be of the following dimensions when measured without distention of its parts: Length of stave, twenty-eight and one-half inches; diameter of head, seventeen and one-eighth inches; distance between heads, twenty-six inches; circumference of bulge, sixty-four inches outside measurements, representing as nearly as possible seven thousand and fifty-six cubic inches: *Provided,* That steel barrels containing the interior dimensions provided for in this section shall be construed as a compliance therewith.

SEC. 2. That the standard grades for apples when packed in barrels which shall be shipped or delivered for shipment in interstate or foreign commerce, or which shall be sold or offered for sale within the District of Columbia or the Territories of the United States shall be as follows: Apples of one variety, which are well-grown specimens, hand picked, of good color for the variety, normal shape, practically free from insect and fungous injury, bruises, and other defects, except such as are necessarily caused in the operation of packing, or apples of one variety which are not more than ten per centum below the foregoing specifications shall be "Standard grade minimum size two and one-half inches," if the minimum size of the apples is two and one-half inches in transverse diameter; "Standard grade minimum size two and one-fourth inches," if the minimum size of the apples is two and one-fourth inches in transverse diameter; or "Standard grade minimum size two inches," if the minimum size of the apples is two inches in transverse diameter.

SEC. 3. That the barrels in which apples are packed in accordance with the provision of this act may be branded in accordance with section two of this act.

SEC. 4. That all barrels packed with apples shall be deemed to be below standard if the barrel bears any statement, design, or device indicating that the barrel is a standard barrel of apples, as herein defined, and the capacity of the barrel is less than the capacity prescribed by section one of this act, unless the barrel shall be plainly marked on end and side with words or figures showing the fractional relation which the actual capacity of the barrel bears to the capacity prescribed by section one of this act. The marking required by this paragraph shall be in block letters of size not less than seventy-two point one-inch gothic.

SEC. 5. That barrels packed with apples shall be deemed to be misbranded within the meaning of this act—

First. If the barrel bears any statement, design, or device indicating that the apples contained therein are "Standard" grade and the apples when packed do not conform to the requirements prescribed by section two of this act.

Second. If the barrel bears any statement, design, or device indicating that the apples contained therein are "Standard" grade and the barrel fails to bear also a statement of the name of the variety, the name of the locality where grown, and the name of the packer or the person by whose authority the apples were packed and the barrel marked.

SEC. 6. That any person, firm, or corporation, or association who shall knowingly pack or cause to be packed apples in barrels or who shall knowingly sell or offer for sale such barrels in violation of the provisions of this act shall be liable to a penalty of one dollar and costs for each such barrel so sold or offered for sale, to be recovered at the suit of the United States in any court of the United States having jurisdiction.

SEC. 7. That this act shall be in force and effect from and after the first day of July, nineteen hundred and thirteen.

Approved August 3, 1912.

AUTUMNAL FROSTS IN THE CORN BELT.

Of the crops liable to injury from the early frosts of autumn, corn stands out prominently as offering opportunity for most serious financial loss, and in the northern portions of the corn belt September 1 usually finds those interested in that crop anxiously watching the daily weather map for the appearance of the winter type of high barometric pressure moving southward from the Canadian Northwest, that brings the first frost of the season.

An examination of the frost charts of the Weather Bureau (Bulletin V) shows that September 10 is the earliest date on which killing frosts have been reported over any material portion of the corn belt. On that date they have extended into the southern portions of Wisconsin and Minnesota, the northwestern corner of Iowa, and the northern and western portions of Nebraska. During the following 10 days the possibility of killing frosts over the corn belt greatly increases, and by September 20 they may occasionally occur over the entire northern and central portions of the belt, frosts having been reported on that date as far south as central Kansas, south central Missouri, southern Illinois, and central Indiana, and over nearly all portions of Ohio.

However, the average date of the first killing frost in autumn over the northern portions of the corn belt is near September 25, at which time frosts have very generally occurred as far south as the western half of Nebraska, over all of South Dakota except the extreme southeastern part, over northwestern Iowa, and well into the southern portions of Minnesota and Wisconsin. By October 1 killing frosts have generally occurred in northwestern Kansas, as far south as southern Iowa, and in southern Wisconsin, but as a rule they do not extend into the States of the Ohio Valley until between October 1 and October 10.

Autumn frosts rarely injure corn in the central and southern portions of the belt, as the main crop is nearly always well ripened before their occurrence.

For the present season there is little likelihood of serious damage from frost in any portion of the principal corn-growing sections. The severe heat and drought that prevailed earlier combined to ripen the crop prematurely over the central and southern portions of the belt, while in the more northern sections the high temperatures and lack of rain during the latter part of August and the first week of September rapidly advanced the crop toward maturity, so that at the present time there is probably but little corn that is not sufficiently matured to be safe from injury.

WARNING AGAINST FRAUDULENT RADIOACTIVE WATERS.

The United States Department of Agriculture, through the Bureau of Chemistry, has issued the following warning to the public in regard to the so-called radioactive mineral waters offered for sale in bottles:

There are indications of the beginning of an attempt to perpetrate a great fraud on the American people through advertising certain mineral waters as possessing radioactivity. These waters, in some cases, are taken from springs the waters of which as they come from the ground do possess certain radioactive properties. Examination of many of these waters by the department's specialists indicates that whatever radioactivity they possess at the spring is due almost

entirely to radium emanation rather than to the presence in the water of any substance possessing radioactivity. These emanations in the form of gas quickly disappear from the water and as a result, after the water has been bottled a short time, it will possess practically no radioactivity. The belief long held by many people that some mineral waters used at the springs are more effective than when bottled has been explained by some authorities on the ground that the beneficial effect of these waters is due to radioactivity. As the radioactivity disappears soon after the water is taken from the spring, any effect due to the radioactivity must be lost in a short time. If the radioactivity of a water in a spring is 100, four days after bottling it will be only 50, and 12 days after bottling 10. In a month it will be practically nothing compared with the original radioactivity of the water at the spring. The public, therefore, is warned to regard with suspicion any water advertised as possessing radioactivity. As far as the Government's specialists have been able to ascertain, no bottled water, no matter how radioactive it may have been at the spring, retains this radioactivity for any length of time.

The department is now investigating a number of the so-called radioactive waters with the object of securing evidence that can be made a basis of prosecution for misbranding. In the past, before the food and drugs act was enacted, a number of mineral waters made claim to curative properties which they did not possess and succeeded in creating a misplaced confidence on the part of the consumers. This was particularly true of a number of imported waters which were sold extensively in the United States with a statement on the bottle that they were wonderful or magical cures for all sorts of incurable or chronic ailments. The Treasury Department, acting in cooperation with the Department of Agriculture, now refuses admission to the country of foreign waters labeled so as to mislead consumers as to their real or curative properties. The department fears that unless the public is warned the fraudulent trade in so-called radioactive waters will develop, just as the fraudulent trade in other mineral waters was developed, to the point where people with strong imaginations will supply their bottlers with all sorts of testimonials asserting that these supposed radioactive waters have effected wonderful cures.

INDEFINITE QUARANTINE AGAINST IMPORTED POTATOES.

The Federal Horticultural Board has decided to continue indefinitely the potato quarantine that has been maintained during the past year against certain countries from which our main importations of potatoes come. The countries against which quarantine is to be continued are the British Isles, Germany, Austria-Hungary, Newfoundland, and two islands belonging to France in the St. Lawrence River, called St. Pierre and Miquelon.

The object of the quarantine, which was first imposed just a year ago, is to prevent the introduction into the United States of a dangerous potato disease, now unknown in this country. This disease is known as the potato wart, the potato canker or black scab, and is prevalent in the above-mentioned countries.

This notice is of considerable import to potato growers, as it not only insures their crops from the ravages of this disease, but also may affect the price of potatoes. Our potato crops are accustomed to vary greatly, running from a great shortage one year to a great surplus the next. The quarantine shuts off practically all supply from abroad, though it may be noted that it does not affect potatoes from Bermuda or Canada, and means that we shall have to produce practically all the potatoes we consume for an indefinite length of time. The year before this quarantine order was issued (in 1911) there was an importation of 13,000,000 bushels of foreign potatoes into the United States.

Regarding the importation of European potatoes for seed, the department finds that practically all European varieties are unfit for culture in the United States, as compared with the best of our own. The board holds that it is detrimental for American agriculture to encourage the sale and use of foreign seed potatoes (as was done by dealers prior to the quarantine) because of their relative lack of vigor and productivity in the local fields.

The board also states that the present condition of the 1913 potato crop in the United States is, on the whole, most promising. It does not seem apparent at this date that market conditions will require an importation of potatoes into the United States this winter.

CAUSES OF FIRES ON FARMS.

The following figures as to the causes of fires on farms were compiled from the returns of 14 insurance companies in Massachusetts for the five years up to 1905. In certain cases the figures cover only four years, and in some instances do not include the full 12 months of 1904. A study of these figures will show that many of these fires were due to causes which could have been prevented by trifling alterations or ordinary precautions.

Causes.	Number of fires.	Loss.
Ashes in wooden receptacles	6	$2,365.10
Boilers (portable)	4	1,023.13
Brooders	2	92.80
Brush and bonfires (including forest fires)	13	4,440.60
Children and matches	24	4,870.56
Chimneys (including defective flues)	273	76,742.45
Exposing buildings	20	4,233.41
Fireplaces and grates	20	350.20
Incendiarism	99	53,972.45
Kerosene oil stoves, lamps and lanterns	90	21,688.31
Lightning	405	44,563.32
Locomotives	7	1,738.00
Rats and matches	6	106.51
Rubbish	1	6.00
Smoking	14	2,329.72
Sparks on roof	37	7,774.12
Spontaneous combustion	4	1,308.27
Stoves and furnaces (including heating boilers, defective pipes, etc.)	52	10,325.25
Thawing pipes	1	297.73
Tramps	7	6,420.82
Unknown causes	343	147,439.04
Total	1,428	392,087.79

MEASLES IN CATTLE.

MEAT EATERS URGED TO COOK BEEF THOROUGHLY TO AVOID TAPEWORM FROM CYSTS IN BEEF.

The Bureau of Animal Industry of the United States Department of Agriculture has just issued a bulletin dealing with the existence of measles in cattle and the danger of contracting tapeworm run by the people who eat the meat of such cattle. The term "measles" in veterinary medicine refers to a condition resulting from the presence of tapeworm cysts in the flesh of food animals. These cysts, found in beef, when swallowed by man develop into tapeworms known as the beef tapeworm. In the case of pork these cysts develop into another species known as the pork tapeworm. The pork tapeworm is a more dangerous parasite than the beef tapeworm because it may not only develop in man if the eggs are swallowed, but the cysts of the pork tapeworm may lodge in vital organs such as the brain or heart and lead to serious consequences.

The pork tapeworm is comparatively rare in the United States, but the beef tapeworm and its cystic stage are comparatively common in the United States, the explanation being that raw or rare beef is very frequently eaten.

The available figures indicate that nearly 1 per cent of all the cattle slaughtered in the United States, at the present time, are affected with measles. This exposes to considerable risk of tapeworm infestation the consumer who is not careful to cook thoroughly the beef which he eats, and entails a large economic loss through the condemnation of numerous beef carcasses and the more or less expensive restrictions placed by meat-inspection legislation on slightly infested carcasses that may be passed for food.

When a piece of beef containing a living tapeworm cyst is swallowed by a human being the immature tapeworm contained in the cyst, consisting of a head and neck, attaches itself to the wall of the small intestine. In from two to three months the tapeworm is several feet in length, with a width of one-third up to three-fourths of an inch. Each segment is filled with eggs. These drop off and are expelled through the intestines. If these eggs get within reach of cattle, through drainage from cesspools or privies, and the cattle swallow them, the eggs hatch and form cysts in various parts of the animals' bodies.

The department, in Circular 214, urges all people affected with tapeworm to get rid of the parasite, because it may be the means of affecting meat animals and passing the disease on to other human beings. The following protective measures are also advised:

1. An efficient meat inspection to prevent the meat, from cattle seriously affected by measles, from being consumed. This applies particularly to meat slaughtered on the farm and not federally inspected.

2. Thorough cooking of all meat. Particular care should be taken in the case of large pieces of meat to see that they have been cooked through. Knives used to cut raw meat should not be used, without very careful cleaning, to cut bread or other food eaten raw, as the knife blade might very well carry a tapeworm cyst from the meat to a slice of bread.

3. Human excrement should be so disposed of that live stock can not gain access to it and so that there is no possibility of contaminating the feed or water supply of animals.

Those interested in the subject can obtain full data from the department in the form of a circular on "Measles in cattle."

ERADICATION OF CERTAIN WEEDS.

Chicory, dandelion, and the plantains, when growing in farm lands, can be easily eradicated by clean cultivation. The first two possess tap roots and the plantains have shallow crowns with fibrous roots, so that none of these weeds spread rapidly from their underground parts. In a good farming region, especially where a short rotation is followed, these weeds are not much in evidence, excepting where buckhorn plantain is seeded with clover seed. Care should be taken that only clover seed free from the buckhorn is sown, especially where a crop of clover seed is to be harvested.

The handling of weeds along roadsides and fence rows is a problem in itself. All the above-mentioned weeds are inclined to grow in such situations and their complete eradication there is rather difficult. Usually it does not pay to attempt complete eradication in such situations, since they do not spread to the adjoining farm land if it is well farmed. About all that needs to be attempted in such places is to prevent seed production. This applies especially to chicory, which is in blossom at the present time, and will go to seed shortly.

PUBLICATIONS ISSUED.

Agricultural Outlook, Farmers' Bulletin 558.

Medical Milk Commissions and Certified Milk, Department Bulletin No. 1.

Game Laws for 1913, Department Bulletin No. 22.

Vitrified Brick as a Paving Material for Country Roads, Department Bulletin No. 23.

Soil Survey of the Ocala Area, Florida.

Soil Survey of Johnston County, North Carolina.

Proceedings of the Seventeenth Annual Meeting of the American Association of Farmers' Institute Workers, Office of Experiment Stations Bulletin No. 256.

Under the title "Infectious Abortion of Cattle," the Bureau of Animal Industry, in Circular 216, has printed an illustrated pamphlet of 48 pages dealing with the detection and treatment of this disease.

B. H. Galloway.

Assistant Secretary.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1913

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

VOL. I WASHINGTON, D. C., OCTOBER 8, 1913 No. 9

HOW THE FARMER CAN USE THE FACILITIES OF THE U. S. DEPARTMENT OF AGRICULTURE.

Investigation proves that many farmers who could profit materially by the information or help which the Department of Agriculture was established to put at their service have no complete knowledge of these differing kinds of work and different fields in which the department has valuable information to communicate.

To make clear to the people of the country the different subjects covered and the fields in which they have the right to demand specific assistance, the department will publish in the News Letter from time to time an outline giving the functions of the special laboratories, investigations, and field activities carried on by the several bureaus and offices. It will do this in the belief that if the individual farmer obtains a better understanding of the different fields in which the department is conducting work and stands ready to help him he will be able to apply more intelligently for the assistance that is his right.

I. HOW THE BUREAU OF PLANT INDUSTRY HELPS THE FARMER FIGHT DISEASES.

An Explanation of the Economic Value of Certain Offices of the Department to the Agriculturist.

There are a number of offices under the Bureau of Plant Industry in the Department of Agriculture that render the farmer active assistance in his fight against the many diseases that attack his crops. A brief description of these and of the manner in which they are endeavoring to meet the farmers' needs may enlighten many who have only an indefinite idea of their purposes.

THE LABORATORY OF PLANT PATHOLOGY.

When the farmer wishes to find out exactly what disease is affecting a plant or a crop, and whether there is an available remedy, he should apply to the Laboratory of Plant Pathology. Pathology is the science of treatment of diseases and deals with their causes, manifestations, and results.

The farmer may submit specimens of his sick plants to this laboratory. No stamps need be inclosed, as all the mail from the department is always carried free of charge by the Government.

The laboratory investigates not only the causes of a plant disease, but also tries to determine what conditions render plants immune to such affections and works out ways of controlling them when possible. Besides corresponding with the farmer personally, giving him the benefit of the knowledge of the department's specialists, the laboratory sends out bulletins giving the results of its experiments.

OFFICE OF PATHOLOGICAL COLLECTIONS AND INSPECTION WORK.

As suggested in its title, this office possesses large collections of growths known as "fungi," many of which cause diseases to plants. It has over 65,000 specimens of these fungi, arranged systematically and available to persons studying plant diseases.

An important work of this office, of great value to the farmer, is the distinguishing of edible from poisonous mushrooms. This work is done for the personal advantage of any agriculturist who cares to call on it for help. Any one who sends in fresh collections of mushrooms may receive information regarding their classification and whether they are healthful or dangerous as food.

The office also answers inquiries regarding the most profitable way of raising mushrooms, and has likewise been concerned with the study of a disease that has caused serious loss to mushroom growers. A method of controlling this trouble has been evolved and will shortly be made public.

The inspection work of this office extends to plants that are brought into this country from abroad. When a new or dangerous disease is detected in a new importation, the shipment is condemned or quarantined, as the case may call for. Thus, dangerous plant sicknesses that might cause injury to crops all over the United States have been kept out, due to the rigid inspection of this office. Thousands of farmers, ignorant of the very existence of this office, have profited indirectly from its work.

OFFICE OF FRUIT DISEASE INVESTIGATIONS.

Diseases of fruit and nuts form the topic of interest for this office, the ultimate aim of which is to find a method of control for them. Experiments are made to determine the practical value of spraying, eradication, encouraging the growth of varieties capable of resisting diseases, and other methods.

The various men in this office become specialists on the different diseases. They gather all available information, not only from their own research but from work done in every part of the world, all of which is put at the disposal of the American fruit grower.

Some of the propositions which have concerned this office, and from which practical results have been obtained, are:

Pear-blight investigations.
Breeding new pears and apples resistant to blight.
Little peach and peach yellows investigations.
Crown-gall diseases of fruits.
Pollination of orchard fruits.
Apple cankers.
Apple black heart.
Japanese plum disease.
Shot-hole disease and twig-spot of peaches and apricots.
Root-rot disease of fruit trees.
Nut diseases.
Frost injury to fruit trees.
Citrus and subtropical fruit diseases.
Grape diseases.
Cranberry diseases.
Spraying demonstrations and experiments.
Russeting of apples by Bordeaux mixture.
Apple-blotch investigations.
Apple-leaf diseases.
Fruit spots of apples.
Peach and plum brown-rot investigations.
Apple and peach powdery mildew.
Nutrition in relation to fruit diseases.

Anyone desiring information on the above diseases and subjects, or on other fruit diseases, may learn all that is known regarding them by writing to this office.

It has been found that many fruit growers and sometimes whole communities were in ignorance of the success of methods which had been proven advantageous by this office. This was true notwithstanding literature which had been published giving helpful information. These people were still suffering severe losses to their crops when a simple call for help on the Department of Agriculture would have solved their difficulties.

INVESTIGATIONS IN FOREST PATHOLOGY.

This office, which studies diseases of trees and their prevention, benefits large timber owners rather than the grower of farm crops. However, the smallest householders may benefit from the results of this work, as it affects and controls diseases of shade trees and ornamental trees.

Every summer thousands of letters are received and answered in regard to the care and treatment of diseased trees. Often the questions concern the entire planting of trees in a big city, or they may concern some single ornamental tree in the back yard of the cottage of a mill hand.

When a tree has been damaged by a storm or is beginning to rot the owner or person interested may send an inquiry to this office, which always stands ready to give out whatever information there is regarding what treatment should be given. The treatment for these troubles is usually simple and can be readily applied by the small owner in person. The life of a tree may often be saved or greatly prolonged in this manner without the expense of a professional tree surgeon's services. Through correspondence with this office many persons have become interested in the proper care of street and ornamental trees, and have formed organizations for the betterment of tree conditions.

While a little thoughtful care is usually all that is needed to prevent the greatest number of troubles attacking trees, proper direction of this care is necessary. The office of Forest Pathology endeavors to supply this by correspondence, and, while in the Bureau of Plant Industry, this office cooperates with the Forest Service in the interest of forestry in general. Its results, in this connection, are most valuable in large operations, in methods of timber preservation, and in large interstate quarantine movements.

(*To be continued.*)

FORMAL HEARING ON CORN GRADES ANNOUNCED.

A public hearing will be held at the Department of Agriculture, Washington, D. C., on Wednesday, October 29, 1913, at 10 a. m., in order that all persons interested in the commercial grading of American corn may have an opportunity to be heard on the tentative grades for corn, as announced on August 22, 1913, before Federal grades for commercial corn are definitely fixed by the Department of Agriculture.

KILL THE BOLL WEEVIL EARLY.

The Department of Agriculture is sending out warnings to the farmers in the cotton belt, cautioning them against the spread of the boll weevil. It is also advising them through field agents how to destroy and prevent the spread of the insect.

"Destroy the cotton stalk early in October if possible," advises the department. "Destroy your stalks even if your less progressive neighbor does not. It will pay. Clear off and burn all your rubbish on ditch banks and other hybernating places for the weevil. This should be done early in the fall.

"Do not plant cotton after cotton but plant your cotton on land that has grown a heavy crop of cowpeas, velvet beans, Lespedeza, or some other leguminous crop to supply the land with nitrogen and vegetable matter. Break the land in the fall or early winter that is to be planted to cotton next year.

"Where sufficient teams and tools are available to plow under and completely bury the stalks this should by all means be done. Where it is impossible to plow the stalks under they should be uprooted, raked into windrows and allowed to dry for a few days. They should then be burned."

To prove the value of destroying the cotton stalks, the department conducted experiments in Amite County, Miss., last year and the following results are shown:

On 117 acres where no stalks were destroyed but where all other instructions of the Government were followed, the average yield was 619 pounds of seed cotton per acre. On 28 acres where the stalks were

destroyed before October 10, and the same cultural methods applied, the average yield per acre was 1,050 pounds of seed cotton, or a gain of 441 pounds of seed cotton per acre, worth at that time $17.64, was secured by early fall destruction of stalks. If it pays a few men $17.64 per acre to cut their cotton stalks before October 10, what would it mean to a county if every stalk in it were cut before October 10?

On the other farms in the same county where none of the Government instructions were followed, it took from 8 to 10 acres to make a bale of cotton.

RELATION OF ALFALFA TO SOIL IMPROVEMENT.

The unqualied recommendation as a soil improver that is continually being given alfalfa is responsible for the very common belief that this crop is one which should be grown extensively on poor or unproductive soils. No greater mistake could be made than to sow alfalfa, especially in the eastern States, on land which is not in a high condition of fertility.

It is true that, being a legume, it benefits the soil through the addition of nitrogen fixed by organisms forming nodules on its roots, and through its roots it not only supplies considerable quantities of humus but greatly improves the mechanical condition of the soil.

In producing profitable yields of hay, alfalfa utilizes large quantities of phosphorus and potassium, which must be obtained either directly from the soil or from added fertilizer.

Whether alfalfa is a soil improver is a question which can not be answered without some explanation. In the sense in which the term is commonly used, alfalfa is not a soil improving crop, since it can not be utilized in the same manner as cowpeas, soy beans, crimson clover, or hairy vetch for the building up of worn-out or depleted lands. On the other hand, it enriches the good soils through the nitrogen and humus added to the soil by its roots and crowns when the old field of alfalfa is broken up and also by the mechanical action of its roots upon the soil. Furthermore, the preparation of the land prior to seeding the alfalfa and the treatment in the way of top dressing and fertilizing which follow during the few years of its existence doubtless have a very beneficial effect on the crops succeeding it.

In actual practice, then, alfalfa improves good land but can not be considered in connection with poor land, as it is not a profitable crop to grow on unfertile soils.

THE SHEEP MEASLE PARASITE.

The sheep measle parasite has recently been found to be of common occurrence in the United States. It is of importance not only because of its more or less injurious effects upon sheep, but also because of its location in the parts of the body used for human food, namely, the muscles. In cases of heavy infestation, this parasite is liable to cause the death of the affected animal, and under Federal inspection carcasses which show more than a very slight infestation are excluded from use as food. Fortunately, cases of heavy infestation are rare and comparatively few sheep carcasses are condemned in their entirety on account of measles, the carcasses in most cases being fit for food after the removal of the affected portions.

It is a further fortunate circumstance that the sheep measle parasite has been conclusively proved by investigations in the Zoological Division of the Bureau of Animal Industry to be the intermediate stage of a dog tapeworm and not the intermediate stage of the armed tapeworm of man, with which species it has generally been identified in the past. If it were the latter, public health considerations would require that even slightly infested carcasses should be excluded from use as food, and this would entail an enormous loss and a great reduction in the meat supply of the country, as available statistics indicate that at least 1 per cent and probably as many as 5 per cent of the sheep in the western United States are affected with the measle parasite.

Sheep become infected with the parasite as a result of swallowing its eggs which are scattered over the pasture in the excrement of dogs harboring tapeworms, and dogs in turn acquire the tapeworm as a result of eating the carcasses of infested sheep. The preventive measures are, first, the systematic treatment of dogs to keep them free from tapeworms, thus removing the source from which sheep become infected; and, second, the proper disposal of the carcasses of dead sheep and the complete prohibition of raw mutton as an article of food for dogs, thus preventing the possibility of the parasite reaching its canine host. The destruction of carcasses will also reduce the chances of the transmission of the parasite to coyotes, which may also to some extent act as hosts, though these animals are probably much less important as carriers than the dogs which constantly accompany sheep on the range.

THE DEVASTATING ONION NEMATODE OR EELWORM.

It has recently been discovered by investigators in the Bureau of Plant Industry that the onion nematode or eelworm, a pest long since known to do great damage in Europe, Africa, and Australia to onions, hyacinths, rye, oats, potatoes, lucerne, etc., not only exists in the United States, but has already begun its career of devastation, in accord with its old scientific name, *Tylenchus devastatrix*.

Onion seed is subject to attack as soon as it germinates. The plants become affected when quite young, producing twisted and swollen leaves. Later the bulb swells considerably at its upper end and becomes soft and puffy. Thereupon splitting takes place and the whole bulb rots away. The worms are seldom over one-twentieth of an inch long and are very slender and transparent, so that their presence is not generally detected by the naked eye and the grower therefore often remains in ignorance of the cause of his losses. Onion plants infected with the nematode have a peculiar stunted and distorted appearance, usually attributed to drought, poor soil, or other natural cause. Hyacinths and other bulbs are attacked in a somewhat similar way.

Much money and energy have been expended in the study of this pest and the means that may be

employed to combat it. The simplest and most effective remedial measures are as follows:

1. Uproot and burn plants as fast as they show signs of disease. This can be done during the ordinary operations of culture.

2. Deep and thorough plowing, aiming to turn the surface soil exactly bottom side up, so as to bury the worms at least 6 inches deep. This eases without curing, and is not applicable to all soils.

3. Rotation of crops, allowing sufficient time between two plantings of onions to starve down the pest. Crops that may be used in rotation are any but the following: Rye, oats, onions, hemp, potatoes, clover, lucerne. Any of these, being subject to the disease, might simply increase the pest. Corn and barley are to be recommended as resistant crops suitable for starving out the pest.

4. Young onions transplanted from sterile seed beds are much less liable to attack when placed in infected soil than are plants sown in that soil.

5. Scores of chemicals have been tried in the hope of finding some chemical remedy that could be applied without injuring either the soil or crop. Thus far no treatment of this sort has proved successful. In the case of very valuable bulbs which must be grown in infected soil, numerous and shallow injections into the soil of carbon bisulphide or formalin solution, repeated at intervals of a week or 10 days, may prove beneficial. Such treatment, however, would be justified only in the case of unusually valuable plants and should be applied only by an expert.

This nematode pest will not thrive where the winters are severe. In this country it is to be feared most on the Pacific coast and in the Southern States. It is likely to invade greenhouses anywhere in the country if given opportunity. Steam heating the soil of greenhouses is an efficient method of killing the nematodes.

The disease is most commonly spread by shipping bulbs and seeds of infected crops. The eggs and larvæ of this nematode are very resistant to dryness and will revive after being kept perfectly dry for two years. Local distribution of the disease occurs by the transference of particles of infected soil and infected plant material through the agency of running water, agricultural machinery, the feet of men and animals, and wind.

Specific determination of nematodes is a somewhat difficult matter, involving the skillful use of the microscope. Infected material should be sent to the Bureau of Plant Industry for examination.

VETERINARY VACCINES AND SERUMS UNDER SUPERVISION OF DEPARTMENT OF AGRICULTURE.

The Department of Agriculture, on July 1, 1913, was given supervision and control over the manufacture of biological products for the treatment of domestic animals by an act of Congress of March 4, 1913. The numerous complaints which had previously been received from time to time relative to the impotency of some of the preparations, and also the fact that in some instances the use of the products was directly responsible in causing outbreaks of disease, make the necessity for such control obvious.

The manufacture of biological products for human use is subject to the control of the Public Health and Marine-Hospital Service, and this supervision has proved to be of great value in the protection of human health. All manufacturers preparing biological products for veterinary use, such as antitoxins, serums, vaccines, and other analogous preparations are now placed under the supervision of the Department of Agriculture, and since the requirements for the preparations are of the highest standard, the purity and potency will be strictly controlled.

Biological products are more extensively used in the treatment of diseases of animals than in the practice of human medicine. Some of the infectious diseases occur only in a certain species of our domestic animals, while others may be transmitted to all of the species. Thus, veterinary medicine deals with a greater number of infectious diseases than is the case in human medicine. Glanders, for instance, is an infectious disease of horses and similar animals, Texas fever an affection of cattle, while anthrax, on the other hand, may affect all kinds of animals.

In the control of infectious diseases the use of biological products plays an important part. The protection of animals from certain diseases by vaccination is not longer doubted, as for instance in blackleg of cattle and hog cholera of swine. It is only natural that in order to obtain the desired results from such a protective vaccination, the product must be potent and pure. In many instances where bad results follow vaccination it can not be attributed to the failure of the method, but often to the impotent vaccine.

Biological products are also extensively used for diagnostic purposes of certain diseases, and they prove of very great value in affections in which the diagnosis can not always be determined by an examination of the animal. Of these, tuberculin is without doubt of the highest importance, as by its judicious use the disease may be eradicated from a herd, and the introduction of the disease into a healthy herd may be prevented.

With the enforcement of the regulations it is hoped that the biological products for veterinary use will be more uniformly effective, and that the same care will be exercised in their preparation as obtains with the products for human use.

B. T. Galloway,

Assistant Secretary.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1913

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., OCTOBER 15, 1913 No. 10

FOREIGN MEAT REGULATIONS ESTABLISHED.

The Secretary of Agriculture to-day (October 4) published rules and regulations governing the importation of meat and meat food products to carry out the meat section of the tariff act approved on October 3.

The regulations provide for foreign certifications as to ante mortem and post-mortem inspection in countries in which the animals are slaughtered. In addition, meats will be inspected by the Department of Agriculture at ports of entry before admission. Attached to the regulations is a full list of veterinary inspectors in foreign countries whose certificates are acceptable to the United States.

The regulations also place foreign meats after entry into the United States on the same basis as domestic meats. Heretofore imported meats have been governed entirely by the food and drugs act and have been excluded from the establishments under the inspection of the Bureau of Animal Industry under the meat-inspection act. Under the new regulations imported meats are placed under the meat-inspection act after entry and thus are admitted to Federally inspected establishments and are governed by the same inspection system as heretofore has surrounded interstate commerce in domestic meats. The general rule is that no meats that are diseased, contain harmful dyes, chemicals, preservatives, or other ingredients which render such meat or meat product unsound, unhealthful, unwholesome, or unfit for human food will be admitted.

The regulations provide that importers should notify the Chief of the Bureau of Animal Industry, Department of Agriculture, Washington, D. C., as long as possible in advance of the anticipated arrival of importations in large quantities of meat and meat food products at the ports. The notice must state the date, name of carrier, quantity and kind of product, whether fresh, cured, or canned, and should give a description of the packages.

Regulation 1 provides that, save as otherwise specified, the regulations shall relate only to meat and meat food products derived from cattle, sheep, swine, and goats. The importation of meat and meat food products derived from all other animals shall be governed by the rules and regulations adopted pursuant to the provisions of the food and drugs act and amendments thereto.

FOREIGN INSPECTION AND CERTIFICATES REQUIRED.

Regulation 2 provides that, save in the case of small quantities of foreign meats and meat products which comply with the food and drugs act and which are exclusively for the use of the consignee and not for sale, no meat or meat food product shall be allowed to enter the United States unless the same is accompanied by a certificate issued by the proper authorities of a foreign country showing that such meat or meat food product was derived from animals which have received ante mortem and post-mortem veterinary inspection at the time of slaughter in that country and that such meat or meat food product is sound, healthful, wholesome and fit for human food and contains no dye, chemical, preservative, or other ingredient which renders such meat or meat food product unsound, unhealthful, unwholesome or unfit for human food.

This regulation further provides that if any meat or meat food product is offered for importation into the United States from a country other than that in which the animal from which it was derived was slaughtered, in addition to the other certificate the product must be accompanied by a certificate issued by the proper authorities of each foreign country through which the same has passed, showing the identity of such meat or meat food product, and that the same has been examined and inspected and not found to be unsound, unhealthful, unwholesome, or unfit for human food, nor containing the dyes, preservatives, or other ingredients specified in the requirement for the original certificate.

Until the Bureau of Animal Industry has opportunity to prepare and distribute new forms of certificates governing foreign meats the certificates in the form now required under the food and drugs act will be accepted in lieu of the certificate required under the new regulations.

FOREIGN INSPECTION.

Regulation 3 provides that whenever it shall be determined, after due investigation, that the system of meat inspection maintained by any foreign country is not the substantial equivalent of or is not as efficient as the system established and maintained by the United States, or that reliance can not be placed upon certificates required under these regulations from authorities of such foreign country, due notice will be given of that fact by proclamation or otherwise, and thereafter no meat or meat food product as to which the inspection or certification is determined to be insufficient will be admitted into the United States from such foreign country.

INSPECTION IN BOND.

Regulation 4 provides that with the exception of small quantities of meat imported for the personal use of the consignee and not for sale or distribution, no meat or meat food product from any foreign country shall be admitted until it has been examined, inspected, and passed by a department inspector. Inspectors are given authority to take, without cost to the United States, such samples of meat and meat-food products offered for importation as may be required for adequate inspection.

Section 3 of regulation 4 provides that the department inspector in charge or the Chief of the Bureau of Animal Industry may designate a proper place to which meat or meat food products offered for entry may, with the consent of the Secretary of the Treasury, be removed by the consignee under the supervision and in the custody of the Secretary of the Treasury for the purpose of examination and inspection. In such cases the consignee is required to give a penal bond for the amount of the full invoice value of the consignment. If such a consignment is refused admission and the consignee refuses to return such meat to its foreign point of shipment, the consignee shall forfeit the full amount of the bond.

The owner or consignee must pay all charges for storage, cartage, and labor on such meat and meat food products which are admitted or refused admission, or are destroyed for food purposes. The consignee or his agent is required to furnish such facilities for inspecting and such assistance for handling and marking meat and meat food products under the supervision of a department inspector as the department may require.

MISBRANDING PROHIBITED.

No meat or meat food product which bears any statement, design, or device which is false or misleading in any particular, or which is falsely marked as to the place at which the same was produced or prepared, or which is found in any respect to be misbranded or adulterated within the meaning of the food and drugs act, shall be marked "U. S. Inspected and Passed," or any approved abbreviation thereof, until correctly labeled.

CONDEMNED PRODUCTS.

Regulation 5 provides that all meat and meat food products found upon examination and inspection by a department inspector to be unsound, unhealthful, unwholesome, or otherwise unfit for human food, or to contain any dye, chemical, preservative, or ingredient which renders such meat or meat food product unsound, unhealthful, unwholesone, or unfit for human food shall be marked "U. S. Inspected and Condemned," or an approved abbreviation thereof. Meat and meat food products so marked will be refused admission and the consignee directed to export the meat or meat food product within a specified time, unless the consignee within such specified time shall cause the destruction thereof for food purposes under the supervision of a department inspector.

IMPORTED MEATS MAY BE RECEIVED IN FEDERALLY INSPECTED ESTABLISHMENTS, BUT MUST COMPLY WITH MEAT-INSPECTION LAW, AND WILL BE HANDLED AS DOMESTIC MEAT AFTER ADMISSION.

Regulation 8 provides that all meat and meat food products admitted into the United States and marked "U. S. Inspected and Passed" shall, after admission into the United States, be deemed and treated and shipped, handled, and transported as domestic meat and meat food products which have been inspected, passed, and marked under and in accordance with the meat-inspection act and the rules and regulations made pursuant thereto. Such meat and meat food products after such admission may be admitted into establishments wherein Federal inspection is maintained, and may therein be mixed with or added to domestic meat and meat food products which have been inspected and passed. All such imported meat and meat food products after admission shall be subject to all the provisions, prohibitions, and penalties of the meat-inspection amendment.

Regulation 9 makes the sole exemption in that it allows small quantities of foreign meat and meat food products which are exclusively for the personal use of the consignee to be admitted without the foreign certificates. These foods, however, must comply fully with the requirements as to wholesomeness for the admission of other meats.

FEDERAL REGULATIONS PROTECTING MIGRATORY BIRDS.

The new Federal regulations for the protection of migratory and insectivorous birds, according to the act of Congress approved March 4, 1913, were established by proclamation of the President on October 1, to take effect November 1, 1913.

The following is a summary of the open seasons for migratory birds in zone No. 1, which comprises the 25 States lying wholly or in part north of latitude 40° and the Ohio River.

Open seasons for migratory birds under Federal regulations—zone No. 1.

Waterfowl	**Sept. 1—Dec. 16**
Exceptions: Massachusetts	Sept. 15—Jan. 1
New York (except Long Island)	Sept. 16—Dec. 16
Long Island, Oregon, Washington	Oct. 1—Jan. 16
New Jersey	Nov. 1—Feb. 1
Minnesota, North Dakota, South Dakota, Wisconsin	Sept. 7—Dec. 1
Rails, coots, gallinules	**Sept. 1—Dec. 1**
Exceptions: Massachusetts, New Hampshire, Rhode Island	Aug. 15—Dec. 1
Connecticut, Michigan, New York, Long Island	Sept. 16—Dec. 1
Minnesota, North Dakota, South Dakota, Wisconsin	Sept. 7—Dec. 1
Oregon, Washington	Oct. 1—Jan. 16
Woodcock	**Oct. 1—Dec. 1**
Exceptions: Connecticut, Massachusetts, New Jersey	Oct. 10—Dec. 1
Rhode Island	Nov. 1—Dec. 1
Pennsylvania, Long Island	Oct. 15—Dec. 1
Shore birds—Black-breasted and golden plover, jacksnipe, yellowlegs	**Sept. 1—Dec. 16**
Exceptions: Maine, Massachusetts, New Hampshire, Rhode Island, Long Island	Aug. 15—Dec. 1
New York (except Long Island)	Sept. 16—Dec. 1
Minnesota, North Dakota, South Dakota, Wisconsin	Sept. 7—Dec. 1
Oregon, Washington	Oct. 1—Dec. 16

Insectivorous birds protected indefinitely. Band-tailed pigeons, cranes, curlews, smaller shorebirds, wood ducks, and swans protected until September 1, 1918. Rails in Vermont and woodcock in Illinois also protected until 1918.

Shooting prohibited between sunset and sunrise; or at any time on sections of upper Mississippi and Missouri Rivers indicated on map.

LEGAL CONFERENCE ON FORESTRY.

The solicitor of the department has arranged for a conference at Salt Lake City on November 10 next with his assistants in charge of each of the six districts of the Forest Service. The chief purpose of the conference is to consider methods of handling the legal work of the Forest Service in the field so as to secure economical and efficient results.

A NORMAL DAY'S WORK FOR VARIOUS FARM OPERATIONS.

With the idea of helping the farmer to plan his work in advance from season to season, the Bureau of Plant Industry, United States Department of Agriculture, through its Office of Farm Management, has for some time been collecting data as to the acreage that constitutes a normal day's work in plowing, harrowing, drilling, seeding, spreading manure, spraying, harvesting, hauling, etc., with different types of land and different kinds of farm implements and machinery.

To arrive at these figures the specialists secured from many farmers in all parts of the United States reports of actual results achieved with various types of plows and other farm implements and machinery and carefully tabulated this information. Inasmuch as these reports came from all parts of the country and dealt with widely different conditions of soil, climate, and harvesting, the specialists then adjusted the average amount of acreage shown by the actual figures to reach a figure which would fairly represent the average minimum amount of work that a farmer might expect to achieve. These figures of adjusted acreage, therefore, do not represent the maximum performance possible in certain cases where a worker has unusual efficiency, or where natural conditions are peculiarly favorable. They are designed merely to represent what the average farmer ought to expect of his workers, and thus will help him to map out a fairly accurate program, so that his plowing, seeding, and other work can be laid out systematically, with the expectation that the work will be finished by a given date.

The following tables show the expected performances in certain operations which will be undertaken during the fall. (These figures must be regarded as a preliminary report on a much more extensive study.)

TABLE 2.—*A normal day's work with a walking plow, giving the daily acreages reported at 6-inch depths for each width, adjustments for these widths, and a scale of allowances for other depths.*

[Net hours in the field, 9.65.]

Team and width.	Plowed per day.[1]	Adjusted acreage.[2]	Allowance per inch in depth.	Practicable depths.
Two-horse teams:	*Acres.*		*Acres.*	*Inches.*
8 inches	1.69	1.50	0	3 to 12
10 inches	1.62	1.60	0	3 to 12
11 inches	1.67	1.65	0	3 to 12
12 inches	1.76	1.70	.10	3 to 10
14 inches	2.00	1.80	.12	3 to 9
16 inches	2.11	1.90	.15	3 to 8
Three-horse teams:				
8 inches	1.50	1.70	0	3 to 12
10 inches	2.10	1.90	0	3 to 12
11 inches	1.50	2.00	0	3 to 12
12 inches	2.40	2.10	0	3 to 11
14 inches	2.32	2.30	.10	3 to 10
16 inches	2.77	2.50	.12	3 to 9

[1] According to actual averages of cases investigated.
[2] Allowances made to equalize varying soil conditions throughout the country.

TABLE VI.—*A normal day's work with a spike-tooth harrow, giving the average acreages reported for the widths most frequently used and adjustments for other widths.*

[Net hours in the field, 9.65.]

Number of horses.	Width of harrow.		On freshly plowed land.			On well-packed land.			
	Range.	Most common width.	Harrowed per day.	Adjusted acreage.	Allowance for each foot in width.	Harrowed per day.	Number averaged.	Adjusted acreage.	Allowance for each foot in width.
	Feet.	*Feet.*	*Acres.*		*Acres.*	*Acres.*			*Acres.*
2	4–12	8	10.8	9.50	1.2	12.9	194	11.5	1.5
3	8–16	10	15.3	13.5	1.5	19.0	140	17.5	1.8
4	10–26	16	28.3	25.0	1.8	35.1	102	32.0	2.0

TABLE VIII.—*A normal day's work with a disk harrow, giving the average daily acreage reported for the widths most frequently used and adjustments for other widths.*

[Net hours in the field, 9.65.]

Number of horses.	Width of harrow.		On freshly plowed land.				On well-packed land.			
	Range.	Most common width.	Harrowed per day.	Number averaged.	Adjusted acreage.	Allowance for each foot in width.	Harrowed per day.	Number averaged.	Adjusted acreage.	Allowance for each foot in width.
	Feet.	*Feet.*	*Acres.*			*Acres.*	*Acres.*			*Acres.*
2	4– 8	6	7.2	159	6.5	0.50	7.5	147	6.7	0.60
3	5–10	6	7.5	163	6.8	.60	9.1	165	8.0	.70
4	6–10	8	12.8	414	11.5	.80	15.4	432	14.0	.90
5	7–10	8	11.3	7	12.0	.85	13.4	7	14.5	.95
6	7–10	8	15.4	16	13.5	1.00	18.0	19	16.0	1.10

TABLE XIX.—*A normal day's work in spreading manure from a wagon with a fork by one man, giving the time to unload, averaged according to the distance spread.*

Distance spread.		Size of load.	Time to spread.
Range.	Average.		
	Feet.	*Bushels.*	*Minutes.*
8 feet or less	6.84	42.6	28.11
9 to 15 feet	11.77	42.10	27.98
16 feet and over	20.56	43.94	28.54

TABLE XLV.—*A normal day's work in hauling to market with wagon for one man and two horses (loading, hauling, and unloading), giving the number of loads per day, by distance hauled, for each commodity.*

Distance hauled, etc.	Baled cotton.	Corn from crib.	Barrels.	Bags.	Baled hay.	Small grain from bin.	Cabbage.	Loose cotton.	Potatoes from cellar.	Loose hay.	All commodities.
1 mile	6.57	5.00	4.57	5.29	5.25	4.51	3.87	2.50	3.17	3.64	4.39
2 miles	3.86	3.75	3.89	3.91	3.92	3.37	3.27	2.53	3.02	2.69	3.43
3 miles	3.63	2.95	3.20	3.23	3.05	2.93	2.53	2.50	2.29	2.19	2.79
4 miles	2.62	2.47	2.80	2.64	2.51	2.52	2.34	2.09	2.06	1.99	2.37
5 miles	2.29	2.15	2.11	2.11	2.19	2.14	1.89	1.81	1.78	1.72	2.02
6 miles	2.53	1.99	2.06	2.04	2.03	1.99	1.80	2.00	1.66	1.82	1.94
7 miles	2.33	1.79	1.57	1.87	1.87	1.71	1.70	2.50	1.46	1.48	1.72
8 miles	1.66	1.31	1.12	1.27	1.44	1.40	1.15	1.14	1.22	1.22	1.30
9 miles	1.00	1.18	1.33	1.25	1.50	1.42	1.25	1.00	1.10	1.30	1.26
10 miles	1.33	1.17	1.09	1.19	1.10	1.16	1.00	1.21	1.10	1.09	1.14
Number averaged	114	767	204	294	688	735	271	114	532	683	4,402
Average number of loads, 1 to 10 miles	2.86	2.69	2.66	2.67	2.75	2.50	2.28	2.00	2.09	2.07	2.51
Average number of miles	4.9	4.2	4.5	4.4	4.2	4.34	4.4	4.8	4.4	4.3	4.37

Bulletin No. 3, "A Normal Day's Work for Various Farm Operations," which deals also with the use of various other apparatus in plowing, harrowing, drilling, seeding, spreading manure, spraying, harvesting, hauling, etc., for different crops, can be procured free of charge, as long as the supply lasts, by addressing the Division of Publications, U. S. Department of Agriculture, Washington, D. C.

436,682 TONS OF VALUELESS WATER SHIPPED WITH CORN EACH YEAR.

In the belief that American methods of shipping several important staple foods by freight are decidedly wasteful and that this waste in money adds materially to the cost of food, several specialists of the Department of Agriculture have been conducting investigations into shipping conditions in the United States. As a result of these investigations they are convinced that in several particulars the systems used by United States shippers are far less economical than those employed by foreign shippers, notably in Germany. As a result the specialists find, in several instances, that food is started on long freight journeys in such condition that heavy freight charges must be paid on elements which have to be taken out of the food at the end of the trip before it can be used as food. One of the heaviest wasted freight items is the freight paid for the transportation of excessive moisture in corn and in potatoes to be used for stock food or in the manufacture of starch. In Germany the culls and faulty potatoes, which in this country are thrown away, are dried so as to remove all excess water and then shipped to various points for stock-feed purposes. This practice of drying potatoes for stock feed and uses in the arts has not gained great headway in this country. As a result the culls commonly are thrown away and starch is made from potatoes only when there are excess crops, which make them available at a cheap price which permits of shipment to the factories. Potatoes in their natural state contain upward of 70 per cent of water, which has no special nutritive value. Long shipments of potatoes, therefore, in their natural state are not practicable, whereas the Germans, who have dried out the excessive water, find it practicable to ship the dried product.

The waste water now being shipped in corn in the United States, according to the estimates of the specialists, has a serious bearing on the actual cost of corn, and also is one explanation for the great shortage of cars at the corn-shipping seasons. The specialists find, for example, that the American people are paying freight on 436,682 tons of water in shipping their corn from the producing sections to the market. This means that at a time when there is a great shortage of cars there is the equivalent of over 14,556 freight cars of 60,000 pounds capacity loaded with water, which is responsible for the enormous losses resulting from the deterioration of shelled corn before it is finally consumed. Figuring a car length at 40 feet, this means that each year a train 582,240 feet long, or over 110 miles, not counting the locomotives, is engaged in nothing more profitable than hauling water from a few miles up to a thousand miles in the case of corn shipped to the seaboard points from the central corn-producing area. Exactly how much excess freight this represents can not be accurately determined, but as the freight rate on corn is about 1 cent per ton-mile, it can be seen that this hauling of useless water in corn adds materially to the cost of the product before it reaches the consumer.

A study of the average moisture content from the receipts of corn for Baltimore, Chicago, St. Louis, and New Orleans shows that from June to October the average moisture content of corn received ranges from 12.9 to 14.1 per cent. This corn, which has been stored in cribs and allowed to dry out, is, therefore, below the moisture content of 15.5 per cent, which is the maximum moisture permitted by the new proposed corn grades for No. 2 corn. During the months from November to April, however, the moisture content ranges from 18.5 to 20.2 per cent on an average for corn, so that all corn received at these great corn markets during these six months contains an average of from 3 to 4.5 per cent more water than is permitted for No. 2 grade corn. This means that in every bushel of corn from 1⅔ pounds to 2½ pounds of useless water is shipped on the railroads. Using the actual averages of excessive moisture, and disregarding the special shipments where the moisture content may run as high as 27 per cent, the specialists find that the excess water shipped amounts to the equivalent in weight for 15,595,800 bushels of corn.

The presence of this excessive moisture in corn not only adds to the net cost of the corn after it is delivered, but prevents the producer who ships corn over the moisture limit from having his corn graded as grade 2, and consequently compels him to accept a grade 3 or lower, with a corresponding reduction in price for his produce. Moreover, corn with an excessive moisture content is liable to deteriorate in storage. Many corn dealers, therefore, on receipt of the corn have to dry out the excessive water, although others store the moist corn and do not dry it out until it shows danger of deterioration. They hope to get rid of it in its original condition without the necessity for drying it.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1913

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., OCTOBER 22, 1913 No. 11

HEARING FOR AMERICAN WINE MAKERS AND GRAPE GROWERS.

The Secretary of Agriculture, following application for a modification or suspension of Food Inspection Decision No. 120, which relates to the labeling of Ohio and Missouri wines, has announced that he will hold a public hearing in the Department of Agriculture on November 5, 1913, at 10 o'clock. Wine makers and grape growers of all parts of the United States and all other interested parties are invited to appear and present such arguments and such testimony as they may see fit either for or against Food Inspection Decision No. 120, or for or against Food Inspection Decision No. 109, which also affects the labeling of wines. Those unable to attend in person may submit written statements, which should reach the department on or before the date of the meeting.

Food Inspection Decision No. 109 states:

The board is of the opinion that the term "wine" without modification is an appropriate name solely for the product made from the normal alcoholic fermentation of the juice of sound ripe grapes, without addition or abstraction, either prior or subsequent to fermentation, except as such may occur in the usual cellar treatment for clarifying and aging. The addition of water or sugar, or both, to the must prior to fermentation is considered improper, and a product so treated should not be called "wine" without further characterizing it. A fermented beverage prepared from grape must by addition of sugar would properly be called a "sugar wine," or the product may be labeled in such a fashion as to clearly indicate that it is not made from the untreated grape must, but with the addition of sugar.

* * * In the opinion of the board no beverage can be made from the marc of grapes which is entitled to be called "wine," however further characterized, unless it be by the word "imitation."

Food Inspection Decision No. 120, headed "Labeling of Ohio and Missouri wines," deals with the question whether a sugar solution may be added to the grape must before fermentation in the States of Ohio and Missouri and the product still be labeled "wine." This decision allows the addition of a sugar solution to grape must under certain conditions and permits the product to be known as "Ohio wine" or "Missouri wine," or as "Ohio sweet wine" or "Missouri sweet wine." The decision permits a product made in Ohio or Missouri, by the addition of water and sugar to the pomace of grapes from which the juice has been partially expressed, and by fermenting the mixture until a fermented beverage is produced, to be labeled "Ohio pomace wine" or "Missouri Pomace Wine." If a sugar solution is added to these products for the purposes of sweetening after fermentation, the decision requires them to be characterized as "sweet pomace wines." The addition of any artificial coloring matter or sweetening or preservative other than sugar must be declared plainly on the label.

CANNED OYSTERS MUST CONTAIN DEFINITE WEIGHT OF DRAINED OYSTER MEAT.

The Board of Food and Drug Inspection has issued a notice to all oyster canners, from Louisiana to Maryland, that, pending further investigation, the Board of Food and Drug Inspection will accept the weights of drained oyster meat in different sized cans agreed upon by the canners at their meeting of October 1, 1912.

The notice results from the fact that examination of samples of canned oysters put up during the season of 1912–13 shows that there was a shortage of from 10 to 15 per cent of drained oyster meat in cans of all sizes except those used for packing select and extra select oysters. The specialists of the department believe that this shortage in weight is not intentional, but is due rather to the fact that the packers made insufficient allowance for loss of weight of oysters through processing. Canners are, therefore, urged to pay closer attention to this question to avoid shortage in the cans prepared during the season of 1913–14. This amounts to a notice that to comply with Food Inspection Decision No. 144, canned oysters must show the following weights of drained oyster meat:

Size of can.		Weight of drained oyster meat.
Diameter.	Height.	
		Ounces.
$2\frac{11}{16}$ inches	$2\frac{3}{8}$ inches	3
$2\frac{11}{16}$ inches	$3\frac{7}{16}$ inches	4
$2\frac{11}{16}$ inches	4 No. 1	5
$3\frac{3}{8}$ inches	$3\frac{13}{16}$ inches	8
$3\frac{3}{8}$ inches	$4\frac{1}{16}$ No. 2	10

COTTON BOLLWORM MUST NOT BE CONFUSED WITH BOLL WEEVIL.

The Department of Agriculture has recently received numerous inquiries about injury by the cotton bollworm, especially in the eastern part of the belt. In many cases this insect has been confused with the boll weevil, and several erroneous reports about the occurrence of that pest in new regions have thus become prevalent.

The bollworm is the larva of a moth, and is only very distantly related to the weevil, which belongs to the large natural group of beetles. The worm when first hatched is very tiny, but grows rapidly, becom-

ing finally a little over an inch long, and greenish or brownish in color. The weevil grub is white and found only within the cotton square or boll. It never exceeds one-half inch in length.

In the case of the present outbreak the injury began so late in the season that little can be done to protect the present crop. Nevertheless, a farmer can insure the crop of the coming season against injury by the pest with comparatively little trouble and expense. The action that should be taken wherever injury has occurred this year is to pick the cotton as quickly as possible and immediately thereafter to plow and harrow the fields. This work will result in the destruction of the immature stages of the worm which have passed just beneath the surface of the soil. In addition to the effect in destroying the insect the plowing and harrowing of the fields will have very great value in the way of preparing for the crop of the following season.

Methods of control of the bollworm which are applicable in different seasons of the year are described in Farmers' Bulletin 290.

1. HOW THE BUREAU OF PLANT INDUSTRY HELPS THE FARMER FIGHT DISEASES.

[*Continued from last issue.*]

COTTON AND TRUCK DISEASES AND SUGAR PLANT INVESTIGATIONS.

This office endeavors to help the farmer control diseases that affect cotton, garden vegetables, forage crops, and sugar plants, including beets, cane, maple, and sorghum. Its experiment stations throughout the country are continually occupied in investigating diseases that attack such of these crops as are grown in each particular section. These supply the local farmers with practical help and information on the progress of their work and make demonstrations of successful results from which the farmer may profit.

Some of the propositions in which this office is concerned are as follows:

(1) *Cotton wilt.*—The cooperation of experiment stations in South Carolina and Georgia to establish and extend the use of the wilt-resistant varieties of cotton has continued to be satisfactory during the past year. Twenty farmers in South Carolina and 30 in Georgia are breeding strains of the department's product for sale. The importance of this work is shown by the statement of one cooperative breeder that last fall he had calls for 1,000 bushels of seed more than he could furnish. The number of cooperative breeders will be increased as rapidly as suitable farmers can be located who are willing to take up the work.

(2) *Potato diseases.*—The office is now devoting special attention to a disease called "leaf roll," which has caused heavy loss in Colorado and that vicinity the past year.

(3) *Sweet potato diseases.*—Field experiments have shown conclusively that sanitary measures are most important in controlling these diseases, and control has been effected in an infected district in Vineland, N. J. This study will be extended to the Southern States during the coming year and a preliminary survey is being planned.

(4) *Watermelon breeding.*—The breeding of a wilt-resistant melon has been the object of this line of work. Seventy-five pounds of seed of this melon were grown for congressional distribution during the year.

(5) *Ginseng investigations.*—Additional funds appropriated for the purpose have recently enabled this office to extend its work in order to meet a strong demand from growers of the product in Michigan, New York, Ohio, Pennsylvania, and Wisconsin.

(6) *Demonstration spraying for truck crop diseases.*—As a result of the past year's work, growers may now be expected to take up cantaloupe spraying. Spraying is also essential to celery production, but there must be developed a type of apparatus satisfactory for soft soil. The potato spraying has resulted in great profit and the office advises that it be repeated. Everywhere there has been found a tendency among farmers to give up industries which could be saved by the right kind of a spraying method. Two or three years' help from this office would be sufficient to set growers right. Need for this type of experiment was made most evident during this past year by a tomato blight which nearly destroyed the crop in southern Mississippi. Truck growers in South Carolina also appealed for help.

(7) *Cowpea diseases.*—In the cowpea breeding work a variety has recently been secured which resists both wilt and root-knot and is well adapted for use as hay. Several bushels of seed of this were grown in the past season and will probably be ready to distribute in 1914. A bulletin, giving the results of the cowpea work, is planned.

(8) *Sugar-beet investigations.*—This includes investigation of the curly top, leaf spot, root rot, and damping off diseases. Every available method to improve the yield and quality of sugar beets is considered. An important discovery was made that the disease known as "leaf spot" lives only in the dead leaves and that siloing the beet tops will kill the fungus. This discovery should help control the destructive disease by removing the source of infection.

At Madison, Wis., last year, an exceptionally fine crop of seed for sugar-beet breeding was grown. Experiments show that early planting is necessary to get a good seed crop. Machines for planting beets and harvesting the seed are under trial. The office has announced that special stress is to be laid on the economic side of sugar-beet growing in all sections. This should assist farmers to produce beets very economically, to determine where the crop can be grown most advantageously, and to introduce improved methods of culture.

(9) *Sugar-cane diseases.*—The work of investigating cane diseases is just being inaugurated and plans for its future development will depend upon a survey of the conditions in the cane-growing sections and the diseases which are found prevalent. In connection with the sugar-cane work, it has appeared that sorghum is an important crop for sirup purposes.

Whoever wishes to obtain information on any of the above subjects, or any others connected with diseases of cotton, truck, or sugar plants, can apply to this Office of the Bureau of Plant Industry, or its nearest experiment station.

OFFICE OF CEREAL INVESTIGATIONS.

This office is not concerned entirely with diseases, as it studies the production, improvement, and use of the cereal crops, but it also concerns itself with diseases affecting these crops and furnishes information and help regarding them to the farmers.

Cereals that form the subject for investigations in the twenty-odd experiment stations of this office throughout the country are wheat, oats, barley, rye, rice, flax, corn, grain-sorghum, millet, proso, buckwheat, emmer, spelt, and broom corn.

Questions are answered regarding rusts that affect cereals and breeding cereals to resist rust; regarding smuts of corn, sorghum, and broom corn. Other ways in which this office is of practical value to the farmer will be explained in a subsequent article in the News Letter.

TOBACCO AND PLANT NUTRITION INVESTIGATIONS.

This office, like the Office of Cereal Investigations, covers a large field, only a small part of which is concerned with pathology (the treatment of diseases). However, its specialists are continually devising methods of controlling diseases that injure tobacco and have made recent discoveries of great value to the tobacco grower.

NOTE.—The farmer should bear in mind that field stations of these various offices are scattered throughout the country, and that one may be located near him where he may receive just the help he needs for the crop he is raising. The Bureau of Plant Industry gladly furnishes to anyone who writes, information regarding its experiment stations.

POOR CREAMERY BUTTER DUE CHIEFLY TO THE POOR QUALITY OF CREAM RECEIVED AT THE CREAMERY.

Investigation by the Department of Agriculture shows that only a small per cent of the butter sold at the principal butter markets can be graded as "extras." This is because much of the cream is sour and tainted when delivered at the creameries. Only poor grades of butter can be made from such cream.

In many creameries there has been no incentive for the farmer to deliver the good cream at the price he receives, as the price paid for sour, stale cream is the same as for sweet cream. Competition has driven the creamery men to accepting cream regardless of quality, age, or condition. This method of paying has resulted in poor cream and consequently poor butter.

EDUCATION OF THE FARMER.

Through the dairy districts, such as Iowa, Minnesota, Wisconsin, Illinois, Michigan, Ohio, etc., the farmers a few years ago delivered to the creameries clean, sweet milk, which was made into a first grade of butter that brought the highest price. Many of the same farmers are to-day delivering cream a week old. This is done not because of lack of knowledge, but because their cream, bad as it is, is accepted by the creamery. If one creamery does not accept it another will; the farmer, therefore, simply is following the lines of least resistance.

PAYING FOR QUALITY.

If the creamery men would pay for cream according to its true value, there would be a rapid improvement in the quality. The proportion of good table butter that would grade "extras" is very small. This assumption is justified by the results obtained from the introduction of the grading system in the State of Maine. The dairy authorities in that State inform us that at one time at least 90 per cent of the cream was sour when it reached the creameries, but that within a short time after a system of grading was established, by which sweet cream received a premium of 2 to 3 cents per pound of butter fat, 95 per cent of the cream was sweet when it reached the creamery, and this condition still prevails. This simple system of grading has proved to be of mutual advantage to the creameries and their patrons in this section. The latter have received a price for their product several cents above market quotations, while the creameries have maintained a high standard for their finished product.

An investigation of the conditions in Maine has brought out the fact that the farmers are delivering their cream only two or three times a week during the summer months, but most of it is sweet when it reaches the creamery. In fact, a large amount of this cream is used to supply the sweet-cream trade in the cities, and is from 4 to 7 days old when consumed. The Maine farmer's milk or cream is cooled immediately by being placed in ice water. The result of doing this is generally understood, but not often practiced, except on compulsion or when made remunerative to the producer.

BASIS FOR GRADING.

The plan that seems to have been most successful in operation is to make two grades of cream, No. 1 and No. 2.

No. 1 cream must be sweet, with a clean flavor, and for it a premium of from 1 to 3 cents a pound of butter fat is paid.

No. 2 cream may be sour, but must have a clean flavor, and for this grade a straight price based on quotations is usually paid.

Cream that is not clean in flavor and consequently not included in either of these grades is rejected. Good butter can not be made from such cream, and it is not profitable to either the producer or the manufacturer at any price.

The butter-fat content of cream is usually given some weight in grading, as it is desirable that cream may be of the proper consistency for churning without requiring either dilution or concentration. When cream is received at the creamery it is carefully inspected, the two grades being weighed, ripened, churned, and marketed separately. The butter made from the No. 2 cream will usually bring the quotation price, while the butter from the sweet cream, if properly made, will bring a premium over quotations. In this way the creamery can afford to pay its patrons a higher price for fresh, untainted raw material, and so the farmer gets some substantial reward for the care he has exercised. The consumer should be willing to pay an extra price for a clean and wholesome product handled under sanitary conditions.

TO DESTROY LOCUST BORER, AFFECTED TREES MAY BE CUT AFTER OCTOBER 1.

The cutting of the locust tree for all purposes, including thinning operations and for private commercial use, should be done between the first of October and the last of March. To destroy the locust borers before they enter the wood, the removal of the bark from all desirable portions of the trunks of the trees felled is important and necessary. Tops and thinnings should be burned.

The yellow striped, long horned, winged beetle that produces the devastating borer is found from August to October on trees and the flowers of the goldenrod. During this period eggs are deposited in the crevices of the bark of growing trees and the young borers, after being hatched, pass the winter there, and in the spring bore through the bark to the heart of the tree.

The injury to the trees consists of wounds in the bark and sapwood, which if sufficiently severe and repeated year after year, result in a worthless growth or the death of the timber affected. The numerous wormholes in the wood also reduce its commercial value.

The presence of the insects in injurious numbers is indicated at this season of the year by the frequency of the adults on the goldenrod flowers and on the trees. So extensive has the damage of this pest been in some sections of the Eastern States and the Middle West that it is now considered unprofitable to grow the tree for either shade or timber. One important reason for holding this borer in check is to prevent its extension into the Far West and other sections which are at present free from it.

Experiments have demonstrated that the grubs may be killed by spraying the trees and branches with a strong solution of kerosene emulsion. This should be done not earlier than November and not later than March, because this spraying when the trees are in leaf will destroy the foliage and check growth.

This emulsion may be prepared as follows:

Kerosene emulsion (soap formula)—		
Kerosene	gallons	2
Whale-oil soap (or 1 quart soft soap)	pound	½
Water	gallon	1

The soap, first finely divided, is dissolved in the water by boiling and immediately added boiling hot, away from the fire, to the kerosene. The whole mixture is then agitated violently while hot by being pumped back upon itself with a force pump and direct discharge nozzle throwing a strong stream, preferably one-eighth inch in diameter. After from three to five minutes' pumping the emulsion should be perfect, and the mixture will have increased from one-third to one-half in bulk and assumed the consistency of cream. Well made, emulsion will keep indefinitely and should be diluted only as wanted for use.

For the treatment of large orchards or in municipal work requiring large quantities of the emulsion, it will be advisable to manufacture it with the aid of a steam or gasoline engine, as has been very successfully and economically done in several instances, all the work of heating, churning, etc., being accomplished by this means.

The use of whale-oil soap, especially if the emulsion is to be kept for any length of time, is strongly recommended, not only because the soap possesses considerable insecticide value itself, but because the emulsion made with it is more permanent, does not lose its creamy consistency, and is always easily diluted, whereas with most of the other common soaps the mixture becomes cheesy after a few days and needs reheating to mix with water. Soft soap answers very well, and 1 quart of it may be taken in lieu of the hard soaps.

In limestone regions, or where the water is very hard, some of the soap will combine with the lime or magnesia in the water, and more or less of the oil will be freed, especially when the emulsion is diluted. Before use, such water should be broken with lye, or rain water employed.

For use on locust trees dilute 1 gallon of emulsion with 2 gallons of soft water.

Pure kerosene and pure petroleum will effectually kill the insects, but may do some damage to the bark of the trees.

Experiments with carbolic emulsion indicate that this preparation is of no value to kill the young grubs.

According to Dr. Howard, Chief of the Bureau of Entomology, the brown and apparently dying condition of the yellow or black locust trees in the States of Virginia, Maryland, Pennsylvania, West Virginia, and Ohio is caused by the insect known as the locust leaf-beetle. Nearly every summer the brownish appearance of these trees attracts attention and causes considerable inquiry and some alarm. However, with a few exceptions the trees recover and come out fresh and green the following spring.

A more complete description of the locust borer and methods for its control may be obtained from Circular No. 83 of the Bureau of Entomology, which is written by A. D. Hopkins in charge of Forest Insect Investigations. The bulletin contains photographs of the borer.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1913

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

Vol. I WASHINGTON, D. C., OCTOBER 29, 1913 No. 12

WORK ROADS NOW FOR THE WINTER.

HOW TO BUILD AND USE LOG AND PLANK DRAGS FOR EARTH ROADS.

This is the time of year, according to road experts of the Department of Agriculture, when the earth road should be prepared for the winter. The use of the split-log drag is important in putting the roads in shape for winter use.

There are over 2,000,000 miles of earth roads in the country, and the split-log drag is of great service in keeping them in economical repair. The drag is used in many States and in foreign countries. It is used with two, three, or four horses, and is easily constructed.

The two-slab log and plank drags have proven the most satisfactory. Double drags for working both sides of the roadway simultaneously have been tried with only limited success. The reason for this is that both sides of an earth road are never exactly alike. This causes the two parts of the drag to work unevenly and to interfere with each other.

HOW TO BUILD A LOG DRAG.

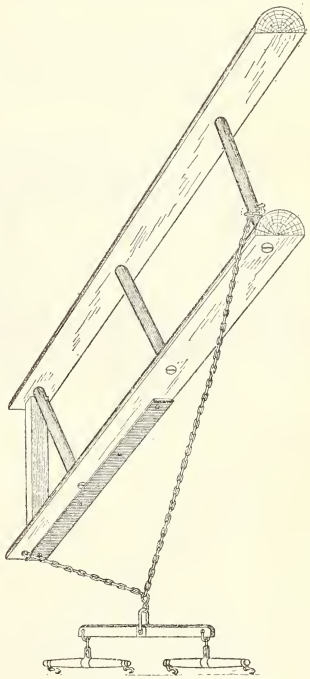
It is a mistake to construct a heavy drag. A dry red cedar log is the best material for a drag. Red elm and walnut when thoroughly dried are excellent, and box elder, soft maple, or even willow are preferable to oak, hickory, or ash.

The log should be 7 or 8 feet long and from 10 to 12 inches in diameter and carefully split down the middle. The heaviest and best slabs should be selected for the front. At a point on the front slab 4 inches from the end that is to be at the middle of the road locate the center of the hole to receive a cross stake, and 22 inches from the other end of the front slab locate the center for another cross stake. The hole for the middle stake will lie on a line connecting and halfway between the other two.

The back slab should then be placed in a position behind the other. From the end at the middle of the road measure 20 inches for the center of the cross stake, and 6 inches from the other end locate the center of the outside stake. Find the center of the middle hole as before. When these holes are brought opposite each other, one end of the back slab will lie 16 inches nearer the center of the roadway than the front one. The holes should be 2 inches in diameter. Care must be taken to hold the auger plumb in boring these holes in order that the stakes shall fit properly.

The two slabs should be held 30 inches apart by the stakes. The stakes should taper gradually toward the ends. There should be no shoulder at the point where the stakes enter the slab. The stakes should be fastened in place by wedges only. When the stakes have been placed in position and tightly wedged, a brace 2 inches thick and 4 inches wide should be placed diagonally to them at the ditch end. The brace should be dropped on the front slab, so that its lower edge shall lie within an inch of the ground, while the other end should rest in the angle between the slab and the end stake.

A strip of iron about 3½ feet long, 3 or 4 inches wide, and ¼ of an inch thick may be used for the blade.



The split-log drag.

This should be attached to the front slab, so that it will be one-half inch below the lower edge of the slab at the ditch end, while the end of the iron toward the middle of the road should be flush with the edge of the slab. The bolts holding the blade in place should have flat heads and the holes to receive them should be countersunk.

An ordinary trace chain is strong enough to draw the implement, provided the clevis is not fastened through a link. The chain should be wrapped around the rear stake, then passed over the front slab. Rais-

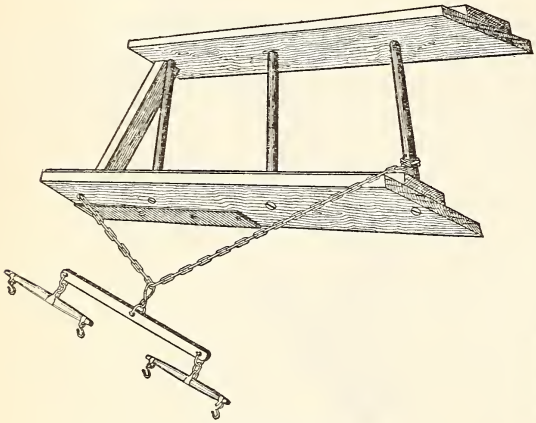
ing the chain at this end of the slab allows the earth to drift past the face of the drag. The other end of the chain should be passed through the hole in the end of the slab. One and one-half trace chains are sufficient.

THE PLANK DRAG.

Drags are often constructed of planks instead of logs. The plank should be strengthened along the middle line by a 2 by 6 inch strip. A triangular strip may be used under the lower edge of the blade to give it the proper cutting slope.

OPERATION OF THE DRAG.

The successful operation of the drag involves two principles, which when thoroughly understood and intelligently applied make road working with this implement very simple. The first concerns the length and position of the hitch, while the second deals with the position of the driver on the drag. For ordinary purposes the snatch link or clevis should be fastened far enough toward the blade end of the chain to force



The plank drag.

the unloaded drag to follow the team at an angle of 45°. This will cause the earth to move along the face of the drag smoothly and will give comparatively light draft to the team, provided the driver rides in the line of draft.

If small weeds are to be cut or a furrow of earth is to be moved, the doubletree should be attached rather close to the ditch end of the drag. The drag will now move nearly ditch end foremost, and the driver should stand with one foot on the extreme forward end of the front slab. This will swing the drag back to the proper angle and will cause the blade to plow. This hitch requires slow and careful driving in order to prevent the drag from tipping forward. If the blade should plow too deeply, the driver should shift his weight toward the back slab. If straw and weeds clog the blade, they can usually be removed if the driver shifts his weight to a point as far as possible from the ditch or blade end.

Usually two horses are enough to pull a drag over an ordinary earth road. When four horses are used they should be hitched to the drag by means of a four-horse evener. The team should be driven with one horse on either side of the right-hand wheel track or rut the full length of the portion to be dragged, and the return made over the other half of the roadway. The object of this treatment is to move earth toward the center of the roadway and to raise it gradually above the surrounding level. While this is being accomplished all mudholes and ruts will be filled, into which traffic will pack the fresh earth.

DANGER IN PASTURING CATTLE IN FIELDS WITH STANDING CORNSTALKS.

Farmers in the corn belt, especially in the middle and upper Mississippi Valley, have at various periods experienced loss of cattle pastured on standing cornstalks after the corn has been harvested in the autumn.

An element of mystery has surrounded the death of cattle in these instances. The disease is characterized by a very rapid course. In fact, very commonly there are no premonitory symptoms, and it is not unusual for the owner upon visiting the field in the morning to find one or more fat cattle dead which on the previous evening were apparently in excellent health.

Another peculiarity of the disease is that losses may occur on one farm or in one field, while cattle on an adjoining farm or in an adjacent field may be free from the affection.

Various investigators in the past have attempted to discover some germ or organism or some toxic substance which might be determined as the cause of this condition, but thus far the cause of the disease has not been established.

As death of stock from this affection is generally sudden and there is little opportunity for treatment, animals should not be turned into a field with standing stalks.

As a matter of fact the disease may be actually prevented by cutting the stalks early and only feeding them after they have been carefully cured and removed from the field. Losses from feeding on standing cornstalks emphasize the economic value of cutting the corn and feeding the stalks in the barnyard or corral, or, better still, shredding the dry stalks, in which condition they may be fed with the least possible waste.

The so-called cornstalk disease should not be confused with poisoning from eating sorghum. Deaths among stock from eating sorghum have been traced to prussic acid poisoning, which poison the sorghum under certain conditions of growth has been found to contain in combination.

THE DEPARTMENT OF AGRICULTURE ADVISES CROP ROTATION AS A PREVENTIVE AGAINST THE WESTERN CORN ROOTWORM.

"An abundance of the corn beetles in a cornfield should be a distinct warning that the field should not be planted to corn the following year, but that it should be devoted to wheat, oats, barley, rye, or to any crop other than corn," is the advice of the Department of Agriculture to western corn planters.

The advice is contained in Bulletin No. 8, which in dealing with the western corn rootworm, one of the most destructive pests of the cornfield, advises crop rotation as a means of eradicating the worm. It is stated that not since the insect was discovered has there been a case on record where corn has been injured when grown on land planted the season before to such small grain crops as wheat, rye, barley, or oats.

The worm is regarded by the department as one of the easiest pests to control under crop-rotation methods provided the farm is not subject to overflow, thus necessitating the planting of corn consecutively.

The adult beetle (the parent of the worm) is about the size of the striped cucumber beetle, has a yellowish green color and black eyes. It is most likely to be observed feeding among the silk of the ear or on the pollen of the corn during late August and September, although they frequently enter farmhouses at night, being attracted by the lamplight.

The department has been engaged in investigations looking to the eradication and control of the corn beetle. Recently it made investigations on a 4,600-acre farm in Dekalb County, Ill. Rotation of crops has been the regular rule on this farm. This year 1,600 acres were planted to corn, 700 acres of which were carefully examined by the department's investigator. In August only 10 acres were found affected by the rootworm, and this was where, in the rearrangement of the field, the ground had also been planted to corn the previous year. In the neighborhood of this farm were a number of plantations where crop rotation was not systematically practiced, and the damage done by the pest was not only general but serious.

THE MEANING OF "1 INCH OF RAIN."

On every daily weather bulletin or chart the amount of rainfall at various places during the preceding 24 hours is printed in inches and hundredths of inches. In a general way the public understands that a rainfall of 2 inches in one day is heavy, and that one of a tenth of an inch is light, but no attempt is made to associate the linear measurement of the water with its equivalents in weight or bulk. This is necessary for a proper understanding of the actual quantitative value of the rain, and the few figures following may prove of assistance in making calculations.

An acre of ground contains 43,560 square feet. Consequently, a rainfall of 1 inch over 1 acre of ground would mean a total of $43,560 \times 144$, or 6,272,640 cubic inches of water. This is equivalent to 3,630 cubic feet. As a cubic foot of pure water weighs about 62.4 pounds, the exact amount varying slightly with the density, it follows that the weight of a uniform coating of 1 inch of rain over 1 acre of surface would be $3,630 \times 62.4 = 226,512$ pounds, or $113\frac{1}{4}$ short tons.

The weight of 1 United States gallon of pure water is 8.345 pounds. Consequently a rainfall of 1 inch over 1 acre of ground would mean $226,512 \div 8.345 = 27,143$ gallons of water on the acre. This is equivalent to 603 barrels of 45 gallons each, and would be sufficient to fill a tank or pool about 20 feet square and 9 feet in depth. Should a farmer desire to build a cistern to be supplied by rainwater from a roof, he can, if he knows the annual rainfall of his locality, so construct his cistern as to make the best possible use of the rainfall. For instance, a rainfall of 1 inch on a roof of 3,000 square feet capacity would mean a total volume of 432,000 cubic inches, or 250 cubic feet, available for the cistern (loss from splashing, etc., not considered). This is equal to 1,870 United States gallons, or about 41.5 barrels of 45 gallons each, enough to fill a cistern 8 feet in diameter to a depth of 4.97 feet.

MEMBERS OF BOYS' CORN CLUBS AND GIRLS' CANNING CLUBS WILL SOON VISIT WASHINGTON TO RECEIVE DIPLOMAS.

Members of the boys' corn clubs and the girls' canning clubs will be in Washington during the second week in December on their annual trip to receive diplomas for proficient corn production and canning from Secretary of Agriculture Houston. During the year 91,196 southern boys each planted an acre of corn. The members of the girls' canning clubs number 33,060. The Government is not paying the expenses of any of the members. The expenses incident to the trip will be borne by the different States and counties or by commercial organizations.

For the past several years a few members of the corn clubs have produced more than 200 bushels of corn per acre, and it is thought that, notwithstanding the drought, there will be some good records this year. A number of boys have been striving to break the record established by Jerry Moore, of South Carolina, who, in 1910, produced $228\frac{3}{4}$ bushels on 1 acre. They, in addition, expect to accomplish this at a lower cost of production. It seems certain that several hundred of the members will get yields above the 100-bushel mark.

Farmers' cooperative demonstration agents of the department are making a systematic campaign throughout the South to show the corn-club boys the importance of legume and winter cover crops. Hundreds of acres are now covered with luxuriant crops of cowpeas and soy beans and more still are being seeded to crimson clover, bur clover, and vetch. The boys are planting rye and oats and are learning the fundamental principles of proper crop rotation.

Each member of the girls' canning clubs has a garden of one-tenth of an acre of tomatoes. She specializes on the tomato plant for the first year, so before taking up her canning work she has acquired a good deal of knowledge of botany and horticulture. In most sections of the South the girls grow other vegetables than the tomato, and in addition they are encouraged by the department's agents to can and preserve all the surplus fruits and vegetables about their homes.

Thousands of cans of peaches, berries, and beans are in pantries in the South where none existed a few years ago, as the result of the work of enterprising girls. Large quantities of products are also marketed by the members.

Here is an agent's report to the department of what one girl sold after filling the pantry: Fig and peach preserves, sweet peach pickles, ginger pears, spiced grapes, small white onions pickled, chili sauce, tomato ketchup, green-tomato pickles, stuffed peppers, tomatoes, corn and okra for soup, canned tomatoes, peaches, blackberries, and grape, blackberry, and apple jelly. The department reports show that wonderful records are being made by the girls in the number of tomatoes grown on one plant. Quite a number have reported more than six dozen tomatoes on one vine. In several cases more than 1 ton of tomatoes were grown on one-tenth of an acre.

SEIZURE MADE OF CREAM WAFERS ALLEGED TO BE ADULTERATED WITH PETROLEUM OIL.

A new adulterant, namely, petroleum oil, it is alleged has recently been found to be used in the manufacture of the popular form of biscuit or wafer which consists of an upper and lower crust covering a cream filler in sandwich form. Seizure of these cream wafers at Cincinnati, Ohio, has just been made pursuant to proceedings instituted by the United States attorney at Cincinnati on the report of the Secretary of Agriculture.

The shipper was the Leonard Products Co., of Brooklyn, N. Y. Seven full cans and 10 cans partly filled were seized. Adulteration was charged in that the cream filler of the wafers contained 20 per cent of mineral oil, which amounts to approximately 3 per cent of the total weight of each wafer.

According to the findings of the Department of Agriculture, this petroleum oil, which is a lubricant rather than a product containing food value, was used in connection with sugar and milk in the preparation of the creamy filler and substituted, because of the cheapness, for coconut oil or butter, which might have been used.

The use of this substance in an article of food is considered an adulteration and in violation of the Federal food and drugs act, and seizure was recommended by the department of the consignment which had been sampled. The court has not yet decided the issue whether the product was actually adulterated, and this issue will be tried out.

POP CORN MAKES A GOOD BREAKFAST FOOD AND CAN BE PROFITABLY RAISED ON THE FARM.

Thirty dollars' worth of popped corn in the form of 5-cent packages for the market represents an outlay of only about $1 or $1.50 for raw material, according to a farmers' bulletin (No. 553) just issued by the Department of Agriculture entitled "Pop Corn for the Home." Sufficient pop corn to make $30 worth of 5-cent packages can be grown on a piece of land 40 feet long and 20 feet wide.

The specialists in corn investigations who write this bulletin say that pop corn has considerable value as a food, and when properly prepared for the table it is superior to many of the breakfast foods now on the market. It is customary on many farms where pop corn is not desired as a market crop to plant a few rows for home use. This phase of farming usually interests the children and it is well to let them do the planting.

If it is desired to grow pop corn as a field crop, the surplus stock not wanted for home use can usually be sold to local merchants at a fair price or it can be profitably sold directly to consumers.

Dealers who put up pop corn in 10-cent packages for the retail trade usually have a number of good recipes printed on the outside of the package. Some recipes for pop-corn confections that have given good results are the following:

CHOCOLATE POP CORN.

2 teacupfuls of white sugar.	2 ounces of chocolate.
½ cup of corn sirup.	1 cup of water.

Put these ingredients into a kettle and cook them until the sirup hardens when put in cold water. Pour over 4 quarts of crisp, freshly popped corn and stir well to insure the uniform coating of the kernels.

SUGARED POP CORN.

Make a sirup by boiling together 2 teacupfuls of granulated sugar and 1 teacup of water. Boil until the sirup strings from the spoon or hardens when dropped into cold water. Pour over 6 quarts of freshly popped corn and stir well.

POP-CORN BALLS.

1 pint of sirup.	2 tablespoonfuls of butter.
1 pint of sugar.	1 teaspoonful of vinegar.

Cook till the sirup hardens when dropped into cold water. Remove to back of stove and add one-half teaspoonful of soda dissolved in a tablespoonful of hot water, and then pour the hot sirup over 4 quarts of freshly popped corn, stirring till each kernel is well coated, when it can be molded into balls or into any desired form.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., NOVEMBER 5, 1913 No. 13

CONTAGIOUS CATARRH OF FOWLS (ROUP).

The affections of fowls that give the poultry raiser most concern, especially during the fall and winter, are those showing catarrhal manifestations in the head. Two kinds of catarrh may be recognized—the simple form, or common cold, and the contagious form, also known as roup. This latter is distinguished from another disease sometimes called roup, but more properly designated diphtheria because of its characteristic membranous exudate in the mouth.

Simple catarrh is a common disease of the air passages and is associated with improper housing that permits a damp atmosphere and undue exposure to drafts during cold, wet weather. Weak stock or poorly nourished birds are more likely to be affected by these conditions than strong, vigorous, well-fed individuals. The affected fowls are more or less dull, their appetites are diminished, breathing becomes difficult, and a thin watery discharge that later becomes viscid escapes from the nostrils or mouth.

It is usually only necessary to remove the cause of the condition to bring about recovery. In severe cases the mouth and nostrils should be washed out once or twice daily with 3 per cent boracic acid or 1 per cent creolin solution.

Contagious catarrh or roup is an infectious disease of great economic importance because of its wide distribution and the usual severity of its attack. Briefly stated, its symptoms are a sudden and severe cold, with increased temperature of the head, generally diarrhea and extreme debility. In very acute cases death may ensue within a few days after the bird is observed to be sick. Usually the bad cases linger for a week or more and show progressively increasing symptoms. The secretions, instead of remaining fluid as in simple catarrh, become thick, purulent, or cheesy, and may obstruct the nasal passages, causing the mouth to be kept open to facilitate breathing. The inflammation may extend to the eye, and the resulting secretion accumulates, obstructing vision and occasionally forcing the eyeball from its socket. The fowl becomes emaciated, sleepy, and unconscious, strength is soon exhausted, and death follows. Milder cases may assume a more chronic form, symptoms being apparent up to six weeks or longer, when recovery may follow; or fowls may be more or less sick for several years, acute attacks developing when the vitality is lowered as a result of cold and dampness or other unfavorable conditions. It is these chronic cases that serve as carriers of infection and furnish the source of new outbreaks.

Roup spreads rapidly through a flock, affecting a large percentage of the birds and causing the death of a variable proportion according to the virulence of the contagion. Young birds are especially susceptible, the mortality reaching 95 per cent at times; adult birds frequently recover.

Medical treatment may be undertaken with good chances of success. One of the best methods is to plunge the fowl's head into a vessel containing a 2 per cent solution of permanganate of potash and hold it there for half a minute. By this method the lining membrane of the nostrils and mouth is thoroughly bathed by the solution. Previous to the above treatment any secretions which have dried over the nasal openings should be removed. Affected eyes will respond rapidly to argyrol in 15 per cent solution. One or two drops should be placed in each eye twice daily. At the beginning of an outbreak the entire flock should be given Epsom salts in the proportion of one-third teaspoonful to each adult bird. A convenient way of administration is to dissolve the salt in water and use the solution in mixing a mash.

As the treatment of a large number of fowls takes time and is relatively expensive for ordinary stock, it is apparent that the best method of combating roup is prevention. This can usually be accomplished by observing proper sanitary precautions.

To successfully guard against roup the poultryman or farmer must appreciate the fact that roup is an infectious disease resulting from the localization in the head of certain specific germs or microorganisms which by their rapid increase in number and toxic action on the system produce the abnormal symptoms above mentioned. These germs may be spread by various agencies. They may be brought to uninfected yards on the shoes or clothing of persons who have been among infected fowls, or on implements, incubators, etc., previously exposed; or they may be introduced by free-flying birds. However, by far the most direct and usual method of introduction is through the acquisition of infected fowls, or the exposure of healthy fowls to infected birds or cages at poultry shows.

It should be the practice of the poultry raiser when buying new stock to ascertain as far as possible whether the birds have been exposed to an infectious disease of any sort, and to further protect his flock by isolating the new birds for a period of two to three weeks and closely observing them. Birds exhibited

at shows should also be quarantined for a similar period before being returned to the flock. Precaution should be taken to close as far as possible the other avenues of infection.

When the disease has secured entrance into a flock, thorough measures of eradication may prevent its spread. All sick fowls should be isolated immediately, and treated if desired. Frequently it is a better policy to destroy those first affected, because of the danger of the infection being carried on the hands or clothing of the attendant to unexposed fowls in other pens. When birds are treated the operator should carefully disinfect his hands before feeding or handling other birds. The houses and runs should now be cleaned thoroughly, all litter and droppings being removed, and should be disinfected with carbolic acid in 5 per cent solution, or cresol in 3 per cent solution. All birds that die must be burned or deeply buried. To prevent the passage of organisms from infected fowls to healthy ones by means of the drinking water the water should be medicated with permanganate of potash in sufficient amount to give the solution a deep red color.

In badly infected flocks where roup reappears from time to time owing to the presence of chronic cases, it is advisable to dispose of the entire lot of fowls, disinfect the houses thoroughly, provide new runs if possible, and start again with fresh fowls from healthy stock, or with incubator chicks.

WHERE AGRICULTURE MAY BE STUDIED.

In View of the Recent Increased Demand for Agricultural Education, Department Tells How Such Education May Be Obtained and Offers Free Reading Courses of Its Own Bulletins.

Nineteen States now require that an examination in agriculture be passed before a teacher may obtain his certificate, according to the bulletin (No. 7) just issued by the Department of Agriculture entitled "Agricultural Training Courses for Employed Teachers." This is an indication of the impetus that has recently been given to agricultural education all over the country. In the two years ending March, 1912, the number of institutions giving courses in agriculture increased at a rate of more than 76 a month, and the total number grew from 863 to 2,575.

Now that 19 States require by law the teaching of agriculture in the common schools, the demand for teachers of the subject is constantly growing. Normal schools, therefore, are introducing courses of agriculture, and many agricultural colleges are offering special lines of work to meet this demand. Still there are hardly enough teachers for the secondary schools and the special schools of agriculture. It has been the object of the Office of Experiment Stations to discover, by investigation, just how teachers already employed may acquire the training required to enable them to teach the elementary phase of agriculture.

Without doubt the most popular, as well as the most efficient means of giving this training is the summer course offered by a college or normal school. The instruction is usually of a high class, and adequate equipment and apparatus for laboratory and field work are usually available.

There are also special short courses in agriculture offered in some institutions during the regular school session, usually the spring term. For instance, the Agricultural and Mechanical College of North Carolina holds a special "May school" for teachers, at which agriculture is taught. Afternoon, evening, and Saturday classes in agriculture during the regular school year are offered at Columbia University, in New York City.

The study of agriculture by correspondence has grown rapidly in favor during the last few years. The expense incident to a correspondence course is usually small; but this method has its disadvantages, as there is considerable danger of the students getting incorrect ideas on the more complex questions which arise. There are at present, however, throughout the United States and its territories, about 25 State institutions and 5 private schools in which some regularly established correspondence work may be done along this line. Many of the courses in the State institutions are free to residents of the State, except for the cost of textbooks and postage. The highest fee charged by a State school is $5 for one course.

Reading classes are also offered by several State agricultural colleges which do not conduct regular correspondence work. These courses are intended rather for farmers and farmers' housewives than for teachers, although teachers are encouraged to enroll as well. These reading courses are offered at the following institutions:

University of Arizona, Tucson, Ariz.
Michigan Agricultural College, East Lansing, Mich.
New Hampshire College, Durham, N. H.
Cornell University, State College of Agriculture, Ithaca, N. Y.
State University, College of Agriculture, Columbus, Ohio.

FREE READING COURSES IN AGRICULTURE OFFERED BY THE DEPARTMENT.

The new bulletin announces that the Department of Agriculture has prepared several reading courses of its own free publications for those who might desire an agricultural reading course, but who have not the time to seek out their own material or might wish to avoid the expense of purchasing the books.

The lists of reading for this work have been compiled in view of the great increase in demand for agricultural training in the past three years. They will enable all who have the inclination and any spare time to follow out a thorough course, the publications being supplied for nothing by the department. If the free publications listed in these courses should become exhausted, they may generally be obtained by purchase for a

small sum from the superintendent of documents, Government Printing Office, Washington, D. C.

There are eight courses offered, which cover thoroughly the subjects treated. They are as follows:

1. Agronomy.
2. Animal husbandry.
3. Horticulture.
4. Forestry.
5. Agricultural engineering.
6. Agricultural technology.
7. Agricultural economics.
8. Agricultural education.

As a sample of what these courses contain, the following is a list of the bulletins given under the heading "Animal husbandry":

Animal husbandry.

Topic.	Title.	Department's Farmer's Bulletin No. or Yearbook.
Bees	Bees	447
Birds	Some Common Birds	54
	Some Common Game, Aquatic, and Rapacious Birds in Their Relation to Man.	497
	Fifty Common Birds of Farm and Orchard	513
	Does it Pay the Farmer to Protect Birds	[1]443
Cattle	The Dairy Herd	55
	Breeds of Dairy Cattle	106
	Tuberculosis	473
Hogs	Pig Management	205
	Hog Cholera	379
Sheep	Raising Sheep for Mutton	96
Poultry	Standard Varieties of Chickens	51
	Ducks and Geese	64
	Turkeys	200
	The Guinea Fowl	234
	Poultry Management	287
Feeds and feeding	The Feeding of Farm Animals	22
	Sheep Feeding	79
	Principles of Horse Feeding	170

[1] Yearbook Separate.

Besides outlining these courses, the new bulletin contains lists of institutions maintaining courses in agriculture in summer sessions, extension courses, and correspondence courses.

Additional copies of this publication may be procured from the superintendent of documents, Government Printing Office, Washington, D. C., at 5 cents per copy.

USE OF CORN, KAFIR, AND COWPEAS IN THE HOME.

Rank High in Nutritive Value—Their Use Means Economy for the Housewife—How to Cook Them.

The use of Kafir corn and of cowpeas as food for man might well become more general, according to experts in nutrition of the United States Department of Agriculture, who have just issued a new bulletin (Farmers' Bulletin No. 559), entitled "Use of Corn, Kafir, and Cowpeas in the Home." Ways of preparing these crops and Indian corn for the table, as well as summaries of tests of their nutritive value, are given in this pamphlet.

The popular belief that the food value of the different sorts of Indian corn, such as white, yellow, red, blue, and black, varies as greatly as their color has not proven to be the case, although they vary somewhat in flavor. The average percentage composition of these various kinds of corn is as follows:

Water	10.8
Fat	4.3
Crude fiber	1.7
Protein (muscle-building elements)	10.0
Starch, sugar, etc.	71.7
Mineral matter	1.5

The fuel value per pound is 1,795 calories (heat units).

In combining one food with others it is sometimes convenient to know how nearly it comes to being in itself a balanced ration. In the rational diet, it is estimated, corn meal should be combined with foods which have more protein (muscle-building elements) or less fat and carbohydrates (energy-producing elements) than it has itself. Among such foods are milk, most kinds of meat and fish, eggs, and cheese. It is the common practice to eat corn-meal mush with milk, to add cheese to corn-meal mush which is to be fried, or to serve corn-meal preparations with meat. Fish balls with corn meal is a dish which approximates the balanced ration. Here is the recipe:

CORN-MEAL FISH BALLS.

2 cupfuls cold white corn-meal mush.	1 egg.
1 cupful shredded codfish.	1 tablespoonful butter.

Pick over the codfish and soak it to remove salt, if necessary. Combine the ingredients and drop by spoonfuls into hot fat. Drain on porous paper. These codfish balls compare very favorably in taste with those made with potato and are more easily and quickly prepared.

Other recipes for cooking corn meal are given in the bulletin and it is recommended that as dishes made with corn meal are likely to be more tender than those made with wheat, the use of small amounts of corn meal in the making of such foods as waffles and doughnuts is desirable.

So closely does the composition of corn meal resemble that of other prepared cereals that, pound for pound, they may all be considered to have the same food value. When corn meal or Kafir meal sells for 3 cents a pound, therefore, and some other cereal for 8 cents, the housekeeper may consider that she secures more than twice as much food for her family for a given sum when she selects corn or Kafir meal.

COWPEAS AS FOOD FOR MAN.

Kafir corn and cowpeas are particularly well suited for use in localities where they will mature crops and both their nutritive value and cheapness, as well as their good flavor and the numerous ways in which they can be used should recommend them to the housewife. Though favorably known as a staple food in the Southern States, the cowpea has not come into general use throughout the United States. It is well worth greatly extended use, as it is wholesome, nutritious, and possesses a peculiarly delicate and pleasing flavor. Cowpeas are used on the table in three forms: In the pod, shelled green, and shelled dried. In these three forms they correspond, respectively, to string beans, shelled green peas, and dried navy beans, and call for much the same methods of preparation for the table. Among the recipes given for cooking cowpeas are the following:

SANDWICH FILLING.

The mixture of cooked peas and cheese may be used for a sandwich filling. In fact, cooked cowpeas mashed and freed from the skins by being put through

a sieve may form the basis of a large variety of sandwich fillings. The cheese may be omitted and chopped celery or nuts added, or the peas may be mixed with a little butter and a few drops of vinegar or lemon juice. Leaves of lettuce dipped in salad dressing add to the attractiveness of the sandwiches.

COWPEA SALAD.

Mix cold, cooked cowpeas with French dressing and serve on lettuce, endive, or water cress. The proportions for the French dressing are 3 tablespoonfuls of salad oil, 1 tablespoonful of vinegar, and one-half teaspoonful of salt. Add a few grains of cayenne pepper.

BAKED COWPEAS.

Cook 1 quart of large white cowpeas slowly in water until they begin to soften. This will require five or six hours. Put them into a bean pot, add one-half pound of salt pork and 1 tablespoonful of molasses. Cover with water and bake slowly six or seven hours. It is well to have the pot covered except during the last hour.

HOPPING JOHN.

Soak 1 quart of dried cowpeas over night in water enough to cover. Cook until they are tender, adding more water if necessary. Cook a pint of rice in 3 pints of water, mix the two, season with 2 tablespoonfuls of butter and 2 teaspoonfuls of salt. A little beef or pork may be added to the water in which the peas are cooked.

This bulletin may be procured free on application to the Division of Publications, United States Department of Agriculture, Washington, D. C.

BOYS' PIG CLUBS.

The Department of Agriculture has its Boys' Corn Club and its Girls' Canning Club, and now comes the Boys' Pig Club, being organized in the South for the purpose of increasing the supply of pork and encouraging good breeding of hogs. Already clubs have been organized in Alabama and Louisiana, and a club organization has been started in Georgia. It is the purpose of the officials of the department to organize clubs in every Southern State.

The idea of the organization started with the farmers' cooperative demonstration branch of the department and has been carried on with the cooperation of the Animal Husbandry Branch of the Bureau of Animal Industry. The organization is an offshoot of the Boys' Corn Club, which has an organization in every Southern State and which has been the means of producing record-breaking yields of corn. The Pig Club, when thoroughly organized, will, it is expected, work hand in hand with the Corn Club. The boys of the latter will produce the corn and the boys of the newly organized association will see to it that the pigs are produced to eat the corn.

In connection with the organization of the Pig Club the department makes the following statement:

It is the purpose of the department to have every member of the club encourage not only an increased production of the swine family but a better breed of pigs than is being raised at present. It is a serious purpose the officials of the department are engaged in—one that is aimed at the high cost of living.

The production of pork is not keeping pace with the increased population and something must be done to harmonize these two elements. If each member of the club—and they will be growing it is expected all the time—will see to it that one more pig and a better pig is produced each year, then a long step will have been taken in meeting the ever-growing chasm between pork production and increased population.

WARNING AGAINST SPURIOUS GRIMM AND DRY-LAND ALFALFA SEED.

Recent investigations by the Department of Agriculture have revealed the fact that large quantities of ordinary alfalfa seed are being offered for sale under the name of Grimm. It has also been found that large quantities of alfalfa seed raised under irrigation are being sold as northern-grown dry-land seed.

In the cases of some of this seed it was found that it was not even domestic seed, but was wholly or in part imported Turkestan seed. This practice of selling other seed for Grimm results in the farmer paying from 40 cents to $1 or more per pound for seed which would otherwise sell for from 12 to 20 cents a pound, and inasmuch as the ordinary seed is not as hardy as Grimm, the first severe winter may kill the entire crop.

The original Grimm alfalfa sown in 1858 in Carver County, Minn., has undergone a natural cross with the common variety which, together with its exposure to numerous severe winters which have eliminated the weaker plants, has made it one of the hardiest of our commercial strains. The seed was produced originally entirely in Minnesota, but tests of the true variety since grown in Dakota, Montana, and Idaho indicate that these lots are all of equal value and are quite as hardy as those grown in Minnesota.

As it is difficult to detect substitutes for Grimm in the seed, the farmers are urged to buy Grimm only from reliable dealers and, as far as possible, to trace the seed back to its source. In many cases the retailers are not deliberately perpetrating a fraud, as they have purchased this seed for Grimm and sell it in the belief that it is Grimm.

This seed has become very popular in regions of cold winters and is now used not only in the Northwest but in the East, particularly in northern New York and New England.

Similarly it is found that in the dry-land regions where the winters are severe and there is little snowfall and comparatively little moisture the northern alfalfa seed grown in cold regions on dry land is especially useful. Much of this seed comes from Montana, and it is found that unscrupulous dealers have been taking seed raised under irrigation in that State and selling it as Montana dry-land alfalfa seed.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1913

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., NOVEMBER 12, 1913 No. 14

TELEGRAPHIC CROP NEWS SERVICE TO BE EXTENDED TO ALL STATES.

As a result of requests from editors and editorial associations in many States, the United States Department of Agriculture has announced that the November crop reports for each State will be supplied to the newspapers in all States through the central weather station located in each of the States.

This is an extension of the experiment of telegraphing the State crop returns to the central weather stations in each of nine States, and having these telegrams duplicated at once and mailed to the newspapers and agricultural publications. Under this plan newspapers in 39 additional States will now receive full details of the State crops far more quickly than would be possible if these State crop details were put in the mails in Washington and had to travel by train long distances to the more remote States. .

Under this plan the general summary of the crops for the United States will, as heretofore, be issued in Washington for telegraphic distribution. It has been found, however, that the conditions of crops within their particular States are of especial value to the farmers and producers, to whom the conditions in their own State are important in the marketing of their produce.

Under this plan the department sends one telegram to the central weather bureau in each State, and within a few minutes after the crop figures for the State are completed in Washington the Weather Bureau is enabled to mail copies of the figures from a central point within the State to all papers in that State.

Under the code system used, the department is under the necessity of telegraphing only a few figures, as the figures of previous crops for comparison are supplied to each Weather Bureau station by mail. The cost of the telegram for each State does not exceed 75 cents.

The crop data thus circulated by mail to the newspapers will give: (*a*) A full list of the crops; (*b*) the average condition of each crop for 10-year periods in that particular State; (*c*) the condition of the State crops for November 9. In the adjoining column will be given the same data for the United States, so that the farmers who read these notices can compare the crops in their State as of November 9 with the 10-year averages of their own State, and in the same way with the average condition throughout the United States on November 9 and for 10 years.

These State crop reports are not supplied to individuals, and are mailed only to editors of regular publications. The November State crop reports for the 39 States newly added to the list will be sent only to the daily papers, the county-seat papers, and agricultural publications. Meanwhile, the department is preparing lists of small town weeklies, and in December the crop reports will be sent also to the smaller papers.

HOW TO DISTRIBUTE LABOR IN RAISING WHEAT BY THE SUMMER FALLOW SYSTEM ON ONE-MAN ACREAGE.

As the result of a study of extensive methods in raising wheat by the summer fallow system in the dry farming districts, Lee W. Fluharty, assistant district leader, of the Office of Farm Management, United States Department of Agriculture, in Washington, Oregon, and Idaho, has developed a schedule showing the proper distribution of labor on a one-man acreage wheat farm.

According to Mr. Fluharty, there is perhaps no type of farming which lends itself so well to extensive methods as raising wheat by the summer fallow system. One man's acreage is limited only by the amount of ground he can plow and cultivate during the summer and seed the following fall. In the better part of the wheat region of eastern Washington, eastern Oregon, and northern Idaho one man, when equipped with six horses and six horse implements throughout, will farm 320 acres of land by this system. The seasonal distribution of labor on a 320-acre wheat farm, when run under the summer fallow system, is shown in the following table:

Month.	Day of month	Days available.	Days used.	Horses used.	Extra men.	Operation.
Mar.....	1-31	10	10	6	.....	Disking stubble 160 A.
	1-9	6	6	6	.....	Do..
Apr.....	10-20	6	6	6	.....	Harrowing fall wheat 160 A.
	21-30	7	7	6	.....	Plowing and harrowing summer-fallow 160 A.
May.....	1-31	21	21	6	.....	Do.
	1-16	13	13	6	.....	Do.
June.....	17-30	8	8	6	.....	Weeding summer-fallow 160 A.
	1-20	14	1	6	2	Cutting wheat hay 10 A.
July.....	21-31	8	8	6	.....	Weeding summer-fallow 160 A.
	1-3	1	1	4	3	Stacking hay 10 A.
Aug.....	4-19	13	13	6	2	Cutting wheat 150 A
	20-31	10	.....	.....	.....	
	1-27	21	21	6	.....	Hauling wheat to market.
Sept.....	27-30	2	2	6	.....	Harrowing summer-fallow 160 A.
	1-10	4	4	6	.....	Do.
Oct.....	11-30	14	14	6	.....	Drilling wheat 160 A.
Nov.....	1-30	10	10	6	.....	Hauling balance of wheat to market.
Total.	.....	168	145	.....	.....	

The above table shows the field operations necessary to grow a crop of wheat by the summer fallow system. It gives the approximate dates between which each operation should be performed, the average number of days available for field work during each month, the number of days used in each operation, the number of horses worked, and the number of and time extra men were hired. It will be seen from a study of this table that the horses worked the equivalent of 864 days for one horse. Had the six horses put in every day available for field work during the season they would have worked the equivalent of 1,008 days for one horse. The regular man worked 145 out of 168 available days and hired but 31 days of extra labor during the harvest season.

SHOWS WEEKLY NEWS LETTER AT HIS POST OFFICE.

Mr. John Heiner, crop correspondent at Reedpoint, Mont., in order to share the News Letter with his neighbors, is posting them in a book, which he leaves in the post office, where anyone who is interested can obtain and read it.

Mr. Heiner later wrote in to the department asking if there was any objection to this plan. In reply the Secretary stated that the Weekly News Letter was intended to convey information to all who would be benefited by its articles, and that crop correspondents were free to distribute this information as widely as possible through any channels they saw fit.

Crop correspondents are invited to communicate the information contained in the Weekly News Letter to their local newspapers, or through their schools or any other channels where they think it will be useful.

FROM A MISSOURI BOY FARMER.

Floyd E. Fisk, of Anderson, Mo., a member of the Boys' Corn Club, was asked by an agent of the Department of Agriculture for a report on his corn crop. The drought had ruined Master Fisk's crop, but instead of a negative report from a disappointed boy he sent the following:

MY CORN.

No use for a boy to look forlorn
When it's too dry in the Ozarks to raise good corn.
He can feed the fodder to the goats
And throw the nubbins to the shoats.
I have done the best that I know how—
I used the harrow, then the plow.
I plowed it deep and close at first,
Then plowed it shallow to quench its thirst;
But it remained dry as dry could be.
I looked and looked and looked in vain—
If I do not succeed I'll try again.

FLOYD E. FISK.

VALUE OF CANNED FRUITS AND VEGETABLES IN WINTER DIET.

The balanced ration of many Americans to-day is made up something as follows:

Bread.	Meat and fish.
Butter.	Potatoes.
Eggs.	

Patent medicine laxatives.

Many Americans customarily suffer from one of the following complaints: Indigestion, constipation, rheumatism. A simple change of the daily menu might go a long way to remedy these ailments, according to the Bureau of Plant Industry's specialist in charge of canning club work. This specialist recommends a change to a menu more in keeping with nature's plans something as follows:

Bread.	Meat.
Butter.	Fish.
Fruit.	Eggs.
Vegetables.	
Greens.	

He recommends that every family provide a diet of fruit and vegetables for every day in the year. This would do much to eliminate the need for patent medicine laxatives that figure so prominently in many Americans' bill of fare. If every home kept on hand enough canned products so that there might be a can of fruits, a can of greens, and a can of vegetables for every day during the winter, there would be little need for the laxatives now so regularly purchased from the corner drug store. There would also be great economy in the substitution of an inexpensive food for more expensive ones.

More home canning, done at the proper season, would enable the average family always to have the proper quantity of canned products, and would save an astonishing amount of food that goes to waste every year. It is estimated that over 50 per cent of all the vegetables, greens, fruits, and berries that grow in this country go to waste and are actually lost to those who need them. This is simply because some housewives have not learned to care for these surplus products efficiently and to make them available for the winter months by canning.

FREE PUBLICATIONS OF SPECIAL INTEREST TO FARM WOMEN.

Following its policy to aid farmers' housewives the Department of Agriculture has recently issued a list of free publications which apply particularly to women's work. This list will be furnished free on application to the Editor and Chief of the Division of Publications, United States Department of Agriculture,

Washington, D. C., as are the bulletins which it describes, as long as the department's supply lasts.

The bulletins are divided into over 100 special classes, there being sometimes as many as a dozen pamphlets for a subject.

There is one class of bulletins dealing with dairying, while others specially concern butter, cheese, cream, and milk. Among the bulletins dealing with milk are the following:

The care of milk and its use in the home.
Ropy milk and cream.
Bitter milk.
Clean milk.
Milk supply of cities.
The covered milk pail.
Cost of market milk.
Lacto, a new and healthful frozen dairy product.

Bulletins on the subject "Drugs" are entitled: Harmfulness of headache mixtures; habit-forming agents—their indiscriminate sale and use a menace to the public welfare.

There is a set of bulletins dealing with bees; a set dealing with birds; and another set dealing with such household insects as the ant and the flea. Guinea pigs, rabbits, and rats also have each a bulletin devoted to them. Particular attention is given to poultry under the following heads:

Poultry accounting.	Incubation.
Poultry diseases and pests.	Poultry marketing.
Ducks and geese.	Pheasants.
Eggs.	Squabs.
Poultry feeding.	Turkeys.
Guinea fowl.	

Farm conveniences in general have one set of bulletins to describe them and farmers' institutes another. Hints on how to prepare foods cover a wide range of subjects, including apples, banana flour, bread, cereal breakfast foods, clams, coffee substitutes, and corn. There are 12 bulletins devoted to canning and preserving. The fireless cooker is the subject of a separate bulletin.

Fruits and flowers each receive their merited share of attention. Annual flowering plants, directions for making window gardens, china asters, garden sweet peas, peonies, and rose slugs are subjects treated in the floriculture set; while the blueberry, grape, melons, the mulberry, the raspberry, the roselle, and the strawberry make up the fruit culture set of publications. Vegetable culture includes bulletins on asparagus, celery, cucumber, mushrooms, okra, rhubarb, and tomato.

The housewife who wishes to know about helpful organizations for boys and girls, such as the corn, poultry, and canning clubs, may learn about them by sending for the list of pamphlets included under the heading "Agricultural clubs."

Trees, school gardens, roads, paint and white washes, industrial alcohol, and water are samples of the wide range of subjects of these publications which the department will send free to the farm woman on application. The list of titles also will be sent free.

NEW PUBLICATIONS OF OCTOBER.

Bulletins of the Department of Agriculture (a new series):
- No. 4. The Reseeding of Depleted Grazing Lands to Cultivated Forage Plants.
- No. 7. Agricultural Training Courses for Employed Teachers, with a Suggested Reading Course in Agriculture Based on Farmers' Bulletins.
- No. 10. Progress Report of Cooperative Irrigation Experiments at California University Farm, Davis, Cal., 1909–1912.
- No. 12. Uses of Commercial Woods of the United States. Beech, Birches, and Maples.
- No. 16. The Culture of Flue-Cured Tobacco.
- No. 22. Game Laws for 1913. (Includes revised regulations for the protection of migratory birds, as proclaimed by the President.)

Farmers' Bulletins:
- No. 555. Cotton Anthracnose and How to Control It.
- No. 556. The Making and Feeding of Silage.
- No. 557. The Potato-Tuber Moth.
- No. 559. Use of Corn, Kafir, and Cowpeas in the Home. (Contains cookery recipes.)

Monthly List of Publications, September, 1913.
List of Free and Available Publications of the United States Department of Agriculture of Interest to Farm Women.
Promising New Fruits. Yearbook Separate 589.
Truck Soils of the Atlantic Coast Region. Yearbook Separate 603.

EARLIER PUBLICATIONS STILL AVAILABLE FOR DISTRIBUTION.

Directions for Constructing Vats and Dipping Cattle to Destroy Ticks. Bureau of Animal Industry Circular 207.
The Fundamentals of Crop Improvement. Reprinted from Bureau of Plant Industry Circular 116.
Progress Reports of Experiments in Dust Prevention and Road Preservation, 1911. Office of Public Roads Circular 98.

DAIRYING IN THE NORTHWEST.

The dairy industry is growing rapidly in the Northwest because of many natural advantages. The rapid development of farming in that section during recent years has resulted in the production of large quantities of feedstuffs, particularly hay. This material must be shipped long distances before it can reach a market, and the high freight rates prevent the producer from realizing any profits. This feed can be converted into dairy products, however, which can be cheaply shipped to market, and for which the market is often close at hand. Dairying should therefore be a great boon to this region, especially in localities where corn and alfalfa can be grown.

A large per cent of the people who have taken up farms in the Northwest, however, are from cities or from other sections of the country, unused to local conditions, and ignorant of the best methods of farm

management in this region. Hence they fall an easy prey to unscrupulous dealers in live stock who sell scrub cattle for pure breds. The creamery promoter also has found it a good field for his labors, and has done much harm by inducing people to erect creameries in localities where there were not enough cows to operate a creamery economically. Wherever creamery promoters have been there is a trail of dead creameries and discouraged dairymen, and it will take several years before our field men can overcome the evil effects of the creamery sharks and of the cattle traders who have unloaded inferior cows at high prices on unsuspecting farmers, who saw the possibilities of dairying in the Northwest but were not sufficiently posted as to details.

$150 FINE IS IMPOSED ON SHIPPER OF ADULTERATED FEED MEAL.

A notice of judgment just issued by the United States Department of Agriculture states that the *Guy G. Major Co.*, of Toledo, Ohio, has been fined $150 for the shipment of feed meal in violation of the Food and and Drugs Act.

Adulteration of the product was alleged because cottonseed meal had been mixed and packed with the product so as to reduce, lower, and injuriously affect its quality and strength, and because cottonseed meal had been substituted in part therefor.

SMALL CONSUMPTION OF MUTTON IN UNITED STATES.

The small consumption of mutton in this country has engaged the attention of the Bureau of Animal Industry for some years. That bureau's report for 1911 shows the average per capita consumption of different classes of meat in the United States, the United Kingdom (Great Britain and Ireland), Germany, and France.

In annual total consumption of meat (including lard) the United States shows 172 pounds per capita, the United Kingdom 119 pounds, Germany 113, and France 80 pounds. More interesting is the amount of mutton and lamb consumed per head yearly. In the United States this is 6½ pounds or 4 per cent of the total, while the inhabitants of the United Kingdom use mutton and lamb to the extent of 22 per cent of their meat diet, Germany 2 per cent, and France 11 per cent.

The extent to which the above differences are attributable to variation in values is shown in the prices in those countries, given in the same report of the Bureau of Animal Industry. In 1911 London English carcass beef prices averaged less than 1 cent a pound above Chicago and New York carcass prices, while in some months of that year they were no higher. During the same year London mutton carcass prices were commonly 2 cents higher than in Chicago and New York and a greater difference existed in lamb prices.

Evidently American consumers have still something to learn of economy in furnishing the meat diet, and a wider demand for mutton and lamb is to be expected. Prices maintained for sheep and lambs during 1912 indicate a broader demand for sheep products. These facts give assurance of stability to sheep-raising enterprises in which the carcass value is given consideration.

DIRECTORY OF THE DEPARTMENT OF AGRICULTURE.

Secretary of Agriculture, David F. Houston.
Is the executive and administrative head of the department and represents it in the President's Cabinet.

Assistant Secretary of Agriculture, Beverly T. Galloway.
Assists in directing the work of the department. In the absence of the Secretary he becomes Acting Secretary.

Weather Bureau, Chas. F. Marvin, Chief.
Conducts meteorological investigations; issues weather maps; handles all work relating to climate, storm warnings, frost warnings, etc.

Forest Service, Henry S. Graves, Forester.
Administers the national forests and develops use of their resources.

Bureau of Animal Industry, A. D. Melvin, Chief.
Studies and gives information regarding live stock; conducts the meat inspection and quarantine work.

Bureau of Plant Industry, Wm. A. Taylor, Chief.
Investigates problems relating to plants and plant industries.

Bureau of Chemistry, Carl L. Alsberg, Chief.
Enforces the pure-food law; investigates questions of agricultural chemistry.

Bureau of Soils, Milton Whitney, Chief.
Surveys and maps the soils, and investigates the fertilizer resources of the United States.

Bureau of Entomology, L. O. Howard, Chief.
Studies insects in their relations to agriculture.

Bureau of Biological Survey, Henry W. Henshaw, Chief.
Studies wild birds and animals in their relation to agriculture; administers the Federal laws protecting game and regulating the importation of birds and animals.

Bureau of Statistics (Bureau of Agricultural Forecasts), Leon M. Estabrook, Chief.
Collects crop statistics; gathers and collates general agricultural statistics; issues crop reports and forecasts.

Office of Public Roads, Logan Waller Page, Director.
Studies and supplies information regarding road making, management, and maintenance.

Office of Experiment Stations, A. C. True, Director.
Supervises the use of Federal funds for agricultural experiment stations; investigates agricultural education, irrigation, drainage, and human nutrition.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1913

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., NOVEMBER 19, 1913 No. 15

TO HELP BOYS GO TO SCHOOL AND YET MAKE A GOOD LIVING RAISING CORN AND PIGS.

The success of the corn-raising and the pig-raising clubs for boys has suggested to those charged with the encouragement of agriculture among youths a combination of corn raising and pig raising which, in addition, will teach the boys the valuable lesson of crop rotation. Under the present corn-club plan a boy raises a single acre of corn, and when his crop is harvested there is no incentive for him to do further work on this special acre.

The specialists therefore have under consideration the following plan whereby the boys will deal with 2 acres instead of 1, keeping 1 acre in corn and the other under rotation with winter cover crops and legumes for hog raising. The basic idea is that under this system a boy will have plenty of time to go to school and yet can make enough money from his corn and pigs to support himself and pay for his education.

The following are the details of the plan as far as it has been worked out:

A proposed plan for combining corn and pig clubs with crop rotations on a 2-acre plot.

[Not yet formally adopted.]

Acre in 1913.		Acre in 1914.
Lot 1.	Lot 2.	
Winter cover crop of oats and clover, or rye and vetch, to suit local conditions.		Winter cover crop of oats and clover, or rye and vetch. Cover crop turned under in the spring and acre planted to corn. Cowpeas or other legumes planted in corn. When crop is harvested, planted in winter cover crop for grazing pigs in 1915.

1. In lot 1, in January, put a pure-bred sow, or as nearly pure bred as can be secured, that will farrow in February or March.

2. The last of March or 1st of April, move sow and pigs to lot 2, turn under the sod and plant rape and sweet sorghum, or other crop suited for grazing from June to September.

3. On or about the 1st of June, move sow and pigs to lot 1, turn under the sod and plant to peanuts or other crop suited for fattening purposes.

4. On or about the 1st of September, move sow and pigs to lot 2, turn under sod and plant to winter cover crop.

5. When the pigs have eaten the crop of peanuts on lot 2 place them in pen and feed corn grown on acre in 1914, and put sow and new litter of pigs on lot 1, or on acre to be used for pigs in 1915.

6. Breed sow so that she will bring two litters of pigs each year, if possible. If this be done, one litter of pigs could be sold to pay expenses.

7. Pigs grown under this plan should weigh from 150 pounds to 250 pounds each at 8 months or 9 months old.

8. A portable fence of hog wire for an acre, costing from $20 to $25, will be found to be very convenient.

9. It will be best to have 2 acres contiguous to each other, but this is not absolutely necessary.

10. The cost of the fence, the cost of seed, the first cost of the sow will be the money outlay to begin. After this it will be work. After the first year, the cost of seed and work is all that will be required to obtain results.

11. In some sections it might be well to divide the acre into four parts instead of two parts and adapt the grazing crops to local conditions.

ROTATION.

1. In the spring or late winter turn under the winter cover crop and prepare land for peanuts, cowpeas, or soy beans.

2. Harvest crop and plant winter cover crop for following year.

The plan is published in its present proposed form largely with the idea of getting suggestions for its improvement.

BOYS' AND GIRLS' POULTRY CLUBS IN VIRGINIA.

The boys' and girls' poultry clubs which were started in Virginia by the United States Department of Agriculture in November, 1912, have proved more popular than was expected, the children having shown great interest in this work since its inception.

It has not been the purpose of the department to see how many clubs it was possible to form this past year, but to start in a few counties in which it was thought good progress could be made and lay a foundation for future work. Throughout the three counties chosen 11 clubs were formed consisting of about 200 members who pursued the course of study and carried out the instructions laid down by the department officers. This consisted of reading the department bulletins, writing a composition on poultry management, followed later by the actual work of securing settings of eggs from Standard-bred stock and raising the chicks.

During the winter, meetings of the clubs were held, and among other things the children were taught the

value of producing the infertile egg and how to grade and pack eggs properly for market. In several instances the instructor in charge of club work assembled the children of a neighborhood on Saturday on one of the farms of their section and gave them a practical demonstration, showing how to set a hen, feed the chickens, care for the poultry houses, etc.

At the State fair recently held at Richmond, Va., the first exhibition of poultry raised by members of the boys' and girls' poultry clubs was held. This exhibit numbered about 150 birds and was a feature of the poultry show in the main poultry building. Besides several handsome silver cups and other special prizes donated by public-spirited citizens of the State, the club members competed for and received the same prize money from the fair association as the other exhibitors, but did not have to compete with them. This generous treatment by the Virginia State fair officials is an incentive for the children to raise better poultry, and many of the club members are already planning for larger and better exhibits for the coming year.

ARSENICAL DIPS USED IN TICK ERADICATION.

In the eradication of the cattle tick which has now been in progress for several years, during which time about 200,000 square miles of territory formerly infested have been freed from this pest, arsenical dips have been extensively and most successfully employed as a means of destroying the tick. In fact arsenical dips have probably had a more favorable influence upon the progress of tick eradication than any other one factor. The dipping solution is applied to cattle by means of a dipping vat filled with the solution into which the cattle are driven and through which they swim, finally emerging from the bath thoroughly wet over the entire surface of the body.

Experimental work in the Zoological and Biochemic Divisions of the Bureau of Animal Industry, which has been amply confirmed by the practical use of the dips in the field, has shown that arsenic has a very pronounced destructive effect upon ticks and that when used at the proper strength it is very rarely injurious to cattle. So far as yet discovered this is true of no other substance which may be used as a remedy for ticks. Even Beaumont crude petroleum, which possesses a high degree of efficacy against ticks, is liable to injure cattle severely, particularly in hot weather. Furthermore, the difficulty of obtaining crude petroleum of proper composition, coupled with its expense, renders this remedy an impractical one.

When tick-infested cattle are dipped in an arsenical solution of proper strength many of the ticks which are in their final stage of development succumb to the poisonous effects of the arsenic; others during several days after dipping fall from the cattle and deposit eggs. The latter ticks, however, unlike those from untreated cattle, usually deposit only a small number of eggs, and it is rather exceptional for any of these eggs to hatch. The dip therefore not only affects the mature ticks but also destroys the vitality of most of the eggs which may be deposited by those surviving the immediate effects of the treatment. The ticks which may be present in younger stages apparently always succumb to the action of the dip before they reach fertile maturity, though they may continue to persist on the cattle for some time after dipping.

Recently it has been determined that arsenic possesses a protective action against reinfestation, but this action is of marked character only during a period of about two days following dipping. That is, cattle are unlikely to become infested if exposed to infestation during the first 48 hours after dipping. After this time, however, the protection against reinfestation diminishes and the cattle again become particularly liable to infestation if exposed in places where seed ticks are present. For the most perfect results, therefore, when tick-infested cattle are to be freed from ticks and then moved to noninfested places without carrying ticks with them, it is necessary to dip the animals twice. After the first dipping the cattle remain in the tick-infested yards or pastures long enough to insure the dropping of all mature and nearly mature ticks which may not immediately succumb to the treatment. If the cattle were moved immediately after the first dipping to a noninfested place there would be danger of introducing infestation from the ticks which drop subsequent to dipping. After all of these ticks have dropped on the infested yards or pastures sufficient time has elapsed so that reinfestation may have already taken place, two days as noted above being the maximum period during which the protective action of arsenic is at all marked after dipping. Consequently, in order to guard against the carriage of ticks to noninfested areas, it is necessary to dip the cattle again 5 to 10 days after the first dipping and then move them to the noninfested area.

In using the arsenical dip in tick eradication, when it is not practicable to abandon tick-infested pastures and move the cattle to clean territory, the practice of dipping the cattle repeatedly at intervals of two or three weeks and allowing them to continue on the same pastures has worked very successfully. The principle of this method is that although reinfestation may occur between dippings, the ticks each time are killed by the succeeding treatment before they have had time to mature and fall off to reinfest the pasture. Meanwhile the seed ticks on the pasture which fail to find a host gradually die of starvation, and in the course of a few months, the time varying according to climatic and seasonal conditions, the pastures as well as the cattle become entirely free from infestation.

Arsenical dips have found their greatest use in tick eradication, but they may also be successfully used for destroying lice. They seem to be rather unsatisfactory against mange or scab. One great objection to arsenical dips is their poisonous nature, but if their use is supervised by persons of average intelligence there is comparatively little risk of injury either to human beings or live stock. Although many millions of cattle have been dipped in arsenical dips in this country during the last few years the accidents reported have been exceedingly few.

Literature relative to arsenical dips and dipping vats may be obtained free on application to the Secretary of Agriculture, Washington, D. C.

DEPARTMENT WILL USE BACTERIAL COUNT IN MILK INSPECTION.

Information has come to the Department of Agriculture that persons representing certain milk dealers are circulating the statement that the United States Department of Agriculture has abandoned all bacteriological examination of milk as a test for its cleanliness and fitness for human consumption.

The department, therefore, has issued the following statement of its position:

1. All statements that the department has abandoned or will abandon the bacteriological examination of milk shipped in interstate commerce as a means of determining its cleanliness and fitness for human consumption are without foundation. While the department has not fixed any specific bacteriological count as a standard in the enforcement of the food and drugs act, it does use bacteriological examinations in reaching its conclusions, and will continue to use these methods irrespective of what action any association may take. The department has never stated that it will not use such methods.

2. The only change in policy in the department in regard to bacteriological examinations has been to discontinue basing prosecution upon the bacteriological examination of a single sample. It now collects a number of samples at different times and examines them bacteriologically. If the bacteriological examination shows that the milk is not clean, but is not a serious menace to health, and the bacteriological deviation from clean milk is a small one, the department, through the Bureau of Animal Industry, endeavors to teach the dairyman how to produce clean milk. If he then neglects to take measures to make his milk clean and safe for human consumption the department, by taking action in the case of milk shipped in interstate commerce, endeavors to force him to bring his milk to a point of safety and food excellence through prosecutions under the food and drugs act.

THE IMPORTANCE OF LEGUME CROPS.

"Among various causes that have led to the abandonment of land once cultivated there is no doubt that the greatest single cause has been the failure to utilize legume crops. Without the rational use of legumes in a rotation, the depletion of nitrogen and the consequent falling off in productivity is certain to occur."

The above statement is made by the Department of Agriculture in connection with the use of legume crops in rotation methods of farming. It is rarely possible to keep up the supply of nitrogen from the humus derived from nonleguminous plants.

"There are 16 important leguminous field crops used in the United States, namely, red clover, alfalfa, cowpeas, alsike clover, crimson clover, white clover, soy beans, peanuts, Canada peas, hairy vetch, common vetch, velvet beans, Japan clover, sweet clover, bur clover, and beggar weed.

"In comparatively few cases does it happen that one of these legumes can be used in place of another," continues the statement. "Cases in which there is a choice are red clover, alfalfa, alsike clover, and sweet clover; cowpeas, soy beans, peanuts, and Japan clover; crimson clover, hairy vetch, and bur clover; velvet beans and beggar weed. The department has been frequently asked by farmers, where there is a choice of legumes adapted to the same purpose, which one adds the most nitrogen to the soil.

"To some extent this is determined by the amount of nitrogen contained in the crop. Thus of 1,000 pounds of green plants cowpeas contain on the average 3.7 pounds; common vetch, 4.1 pounds; Canada peas, 4.3 pounds; Mammoth clover, 4.4 pounds; crimson clover, 4.6 pounds; velvet beans, 5.4 pounds; hairy vetch, 5.5 pounds; sweet clover, 5.8 pounds; alsike clover, 6 pounds; soy beans, 6.5 pounds; red clover, 6.8 pounds; alfalfa, 7.4 pounds; and bur clover, 8.5 pounds of nitrogen.

"Additional advantages considered more or less important in connection with green manuring are based on the root structure of the plant. Unquestionably, legumes with stout roots which penetrate the soil to considerable depths do have a somewhat similar effect to a subsoiler, and furthermore, put vegetable matter at depths which shallow-rooted plants can not reach.

"Investigations prove the high value of the common legume crops whether used in rotation or as green manure crops. Results obtained from their use are far more striking in poor soils than in rich soils. Perhaps the safest rule to apply where there is a choice of two legumes is to use the one which gives the largest total yield per acre, or if these are about equal, to use the one whose seed is cheapest.

"The plowing under of green manure crops as a regular operation is seldom carried on except in orchards. In this case there can be but little doubt that the operation is highly profitable. With field crops the plowing under of a green manure crop is seldom justifiable except in the case of very poor lands or at considerable intervals, because ordinarily it is far more profitable to utilize the crop for feed and then to return the manure to the soil."

METHODS OF ERADICATION FOR BEDBUGS.

A pest that is dreaded by all housewives, but the presence of which is not necessarily an indication of carelessness, is the *Cimex lectularius*, or bedbug. The bedbug, though normally feeding on human blood, may subsist on much simpler food. No other explanation would seem to account for the fact that houses long unoccupied still are infested with this pest. The insect, however, is quite capable of leaving any quarters where it is unable to thrive, and will often migrate to an adjoining house if the residents leave its present habitation vacant.

From its habits of concealment this pest is usually beyond the reach of powders, and the ordinary insect powders such as pyrethrum are of practically no value. The eradication of the insect is comparatively easy from iron and brass bedsteads, but wooden bedsteads offer a much more difficult problem. Very liberal applications of benzine or kerosene, or any petroleum oil, is the most practical way to meet this difficulty. This must be introduced into all crevices with small brushes or feathers, or by injecting with small syringes. (Care should be taken not to use benzine near a flame.) Corrosive sublimate (a poison) is also of value, and oil of turpentine may be used in the same way. The liberal use of boiling hot water, wherever it may be employed without danger to furniture, etc., is also an effectual method of destroying both eggs and active adults.

In the case of rooms containing books, or where liquid applications are inadvisable, a thorough fumigation with brimstone is an effective means of destruction. The method is as follows:

Place in the center of the room a dish containing about 4 ounces of brimstone, within a larger vessel, so that the possible overflowing of the burning mass may not injure the carpet or set fire to the floor. After removing from the room all such metallic surfaces as might be affected by the fumes, close every aperture, even the keyholes, and set fire to the brimstone. When four or five hours have elapsed the room may be entered and the windows opened for a thorough airing.

MANY CITIES SPENDING NOTHING FOR MILK INSPECTION.

Inquiry Shows that 162 Cities Spend on an Average Only 4.14 Cents per Citizen Annually to Safeguard Milk Supply.

The Dairy Division of the Bureau of Animal Industry, United States Department of Agriculture, has just completed an inquiry to determine the amount of money spent for dairy and milk inspection by the cities of the United States. In answer to circular letters addressed to a large number of cities, officers of 208 cities sent in replies, which were tabulated to show the expenditure in cents per capita of population. Of those replying, 184 cities supplied specific information from which the following data were obtained:

Twenty-two cities, some of them containing more than 50,000 inhabitants, reported that they were not spending any money for milk inspection. Of those that reported expenditures to protect their citizens from impure or disease-carrying milk, Waycross, Ga., reported that it spent a little over 19 cents per capita, which is the highest figure reported. Bellingham, Wash., of the cities reporting that they spent any money at all for milk inspection, was the lowest, with one-tenth of a cent per capita per year.

Out of the 184 cities reporting, only 43 spent 5 cents or more per capita to safeguard the public from the dangers of dirty milk. The average of all cities reporting, excluding those that reported that they spent no money for this protective work, was 4.14 cents per capita.

DIRECTORY OF THE DEPARTMENT OF AGRICULTURE.

Secretary of Agriculture, David F. Houston.
Is the executive and administrative head of the department and represents it in the President's Cabinet.

Assistant Secretary of Agriculture, Beverly T. Galloway.
Assists in directing the work of the department. In the absence of the Secretary he becomes Acting Secretary.

Weather Bureau, Chas. F. Marvin, Chief.
Conducts meteorological investigations; issues weather maps; handles all work relating to climate, storm warnings, frost warnings, etc.

Forest Service, Henry S. Graves, Forester.
Administers the national forests and develops use of their resources.

Bureau of Animal Industry, A. D. Melvin, Chief.
Studies and gives information regarding live stock; conducts the meat inspection and quarantine work.

Bureau of Plant Industry, Wm. A. Taylor, Chief.
Investigates problems relating to plants and plant industries.

Bureau of Chemistry, Carl L. Alsberg, Chief.
Enforces the pure-food law; investigates questions of agricultural chemistry.

Bureau of Soils, Milton Whitney, Chief.
Surveys and maps the soils, and investigates the fertilizer resources of the United States.

Bureau of Entomology, L. O. Howard, Chief.
Studies insects in their relations to agriculture.

Bureau of Biological Survey, Henry W. Henshaw, Chief.
Studies wild birds and animals in their relation to agriculture; administers the Federal laws protecting game and regulating the importation of birds and animals.

Bureau of Statistics (Bureau of Agricultural Forecasts), Leon M. Estabrook, Chief.
Collects crop statistics; gathers and collates general agricultural statistics; issues crop reports and forecasts.

Office of Public Roads, Logan Waller Page, Director.
Studies and supplies information regarding road making, management, and maintenance.

Office of Experiment Stations, A. C. True, Director.
Supervises the use of Federal funds for agricultural experiment stations; investigates agricultural education, irrigation, drainage, and human nutrition.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1913

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., NOVEMBER 26, 1913 No. 16

RURAL CREDITS, MARKETING, STANDARDS, AND RURAL ORGANIZATION

The Secretary of Agriculture, in an address on "The Organization of American Agriculture," delivered before the forty-seventh annual session of the National Grange of Patrons of Husbandry at Manchester, N. H., November 14, made the following references to rural credits, marketing, cotton and corn standards, and rural organization and cooperative action:

THE RURAL-CREDIT PROBLEM

We shall leave nothing undone to stimulate production directly and to convey information to the farmer, but we have suddenly been brought face to face with the fact that in many directions further increased production waits on better distribution.

There is a general impression that farmers need better credit arrangements. The slightest reflection will convince one that all farmers do not equally need it; that all sections are not similarly circumstanced. From one section comes the cry not for capital at lower rates but for information as to how to invest capital. That many communities need long-time loans under reasonable conditions for the purchase of farms and for permanent improvements and that other communities need an improvement in conditions under which the small farmer may secure relatively small sums for operating expenses at low rates can not be denied. The question is one of ways and means. And just what is needed and just what should be done no one, so far as I have been able to discover, is at present sufficiently informed or wise enough to assert. For a generation economists have known the facts about European conditions, but few have investigated the conditions at home. The Department of Agriculture is now definitely and rapidly making the home survey, and should in a short time have information of great value to the farmer and to the legislature.

FARMER DOES NOT DEMAND CLASS CREDIT LEGISLATION.

One thing is clear, the schemes that are multiplying which conceive the farmer to be a mendicant and a subject for unique and special legislation may be at once condemned. The American farmer does not need or desire to be classed with those foreign people who are just emerging from a condition of serfdom and tutelage. He asks no opportunity that is not afforded to every American citizen; he asks for no legislation which shall give him credit on easier terms than his brother mechanic or his professional friend or his merchant may secure it. But he does ask to be assisted in creating conditions and machinery which shall enable him on a similar credit foundation to secure his money at the same rates as any other class in the community. This, and this alone, it seems to me, is all that he asks and is nothing less than he deserves. I am not impressed with the wisdom and the justice of proposals that would take the money of all the people through bonds or other devices and lend it to the farmers or to any other class at a rate of interest lower than the economic conditions would normally require and at a rate of interest lower than that at which other classes are securing their capital. This would be special legislation of a particularly odions type, and no new excursions in this direction would be palatable when we are engaged in the gigantic task of restoring the simple rule of equity.

MARKETING INVESTIGATIONS.

In the field of marketing there is also danger that pressure will be brought to bear upon us to act everywhere before we are prepared to act intelligently anywhere. Not that assistance can not be given here and there and not that the department is not furnishing and will not furnish information of great practical value to individuals and communities. The department has arranged its marketing investigations under five important subdivisions:

First. Marketing surveys, methods, and costs, including especially available market supplies in given production areas, demand at consuming centers, cold and other storages, marketing systems and prices, and costs of wholesale and retail distribution of farm products.

Second. Transportation and storage problems, having in mind the elimination of waste and the study of problems connected with surplus market supplies, terminal and transfer facilities, including freight congestion, car supply, deterioration in transit, extension of the practice of precooling of perishable products, and other special services.

Third. City marketing and distribution investigations, involving a study of the uses and limitations of farmers', municipal, wholesale, and retail market houses, systems of city distribution, the promotion of direct dealing between producers and consumers by parcel post, express, and freight.

Fourth. Study and promulgation of market grades and standards, a consideration of sizes and suitability of packages and containers, methods of preparation of perishable products, and the ultimate establishment, so far as practicable, of official market grades and standards for farm products.

Finally. Cooperative production and marketing investigations. The department has done much work in this field through various agencies. It has established standard cotton grades and has practically completed its standard corn grades. It has given much attention to the cold-storage problem, to the packing and handling of perishable fruits. It is convinced, as you are, of the existing chaos and of the consequent wastes—waste resulting from faults on the part of the farmer in the growing and handling of his products; waste resulting from the machinery of distribution, including physical equipment and physical handling; waste

resulting from the manipulation of those middlemen who perform no clearly useful and necessary service; and waste resulting from ignorance on the part of the consumer and of the producer of the character of the product which is placed on the market. The producer of any product is entitled to receive an exact price for the specific product which he offers, and the consumer is entitled to receive just the commodity he thinks he is paying for.

A failure in either direction involves clear injustice and greatly hampers production and crop improvement. Let me illustrate by reference to two vitally important crops—cotton and corn.

THE COTTON AND CORN STANDARD PROBLEMS.

Several different standards of cotton classification are now in use. Some markets have adopted the official grades and use them; others have adopted them, but do not trade on them. Liverpool has one set of grades; New York another. The former is a great market for both spots and futures; the latter almost purely a future market. Atlanta has its own grades; Augusta's are different. Savannah, handling largely the same character of cotton as the two foregoing, trades on Liverpool grades, using Liverpool middling as a basis. Atlanta middling is equal to Liverpool good middling. In other words, at the present time the same grade name is applied to two qualities that differ in market value as much as $2.50 per bale.

The adoption and application of one uniform standard would result in a great simplification of all cotton transactions, doing away with the complex method of figuring buyer's limits. It would not be sufficient to have uniform grades, but the grade selected as the basis grade should be the same in all markets.

The local buyer knows the market cotton grades; the farmer does not. Too frequently the local buyer secures the cotton at practically a flat-rate basis on lower grades, grades the cotton himself, and sells it for what it is worth. The middleman alone profits from this transaction; the producer is defrauded as well as the consumer.

There is not only no incentive for placing a good product on the market; but, as a matter of fact, a penalty attaches to the cotton grower who takes the pains to improve his product.

Uniform standards throughout the cotton belt would result in the rapid building up of a body of common knowledge on the part of the farmers, students in agricultural colleges, and others interested in the universal set of grades.

Practically the same results would follow and the same evils would be removed if standard grades for corn were universally adopted. Definite standards for the grading of commercial corn and the uniform application of such standards in all markets under suitable Government supervision would be of direct value to our corn growers, in that such standardization would encourage the marketing of dry corn of better quality. Heretofore it has been the common practice to pay practically the same price for all corn delivered at country stations regardless of its water content or of its soundness. Farmers have not been slow to grasp the situation, and under such a system have naturally made but little effort to market corn in a dry and sound condition. The system has placed a premium on poor and careless farming at the expense of farm methods and practices.

Under a definite system of grading and the elimination of such terms as "reasonably dry" and "reasonably clean" the farmer as well as the grain dealer will be able to know and fully understand the requirements for the different grades. With a knowledge of the grade requirements, the farmer who markets dry corn of good quality will be in a position to demand a premium for such corn. It will not be necessary for him to accept a No. 4 price for corn which he sells under a grade designation of No. 3. He will then have some encouragement to exercise greater care in the harvesting, storing, and marketing of his corn; he can likewise ascertain in advance of sale with a fair degree of accuracy the grade of his corn while in the crib, and thus not market it until it is sufficiently dry to meet the requirements of a higher grade.

NEED FOR COOPERATIVE ACTION.

Several things stand out very clearly at this stage of our knowledge. All this waste must be eliminated. In simple justice the producer must be paid specifically for what he produces and for nothing else, and the consumer must receive what he thinks he purchases, and must be willing to pay a fair price for a good product. It is absolutely clear that before the problems of rural credit and of marketing the individual farmer, acting alone, is helpless. Nothing less than concerted action will suffice. Cooperation is absolutely essential. The same business sense and the same organizing genius which have placed this Nation in the front rank in industry must be evoked for agriculture.

I am not advocating an organization which shall attempt to establish a closed market and to fix prices. I am advocating simply an economic arrangement which will facilitate production and enable the producer to find the readiest and best market for his product and the consumer to receive his supplies at the lowest cost. Nor am I thinking of concerted effort which shall proceed from above downward. It must associate itself with some particular product which is more or less capable of being standardized, and the object must be to overcome some specific difficulty. It goes without saying that the members of the cooperative society must be those who are bona fide producers and that every approach of the exploiter must be aggressively repelled. The object must be specifically economic and not remotely political.

Here again the need is for information. Types of organizations which operate successfully abroad can not necessarily be imported into this country without modification. A form helpful for one undertaking is not necessarily the best for another, and one successful in one community under certain conditions can not necessarily be expected to succeed under other conditions in another community. There are many facts to be ascertained. We are aggressively conducting a survey; we desire to know and to estimate the various sorts of enterprises afoot to be able to tell the people on what principles they may organize and for what purposes.

RURAL ORGANIZATION.

This brings us sharply up against the whole problem of the organization of rural life. That rural life should be organized and can be organized is clear; various agencies are definitely attacking its intellectual side. We are effectively studying rural physical improvements, especially good roads. The country is

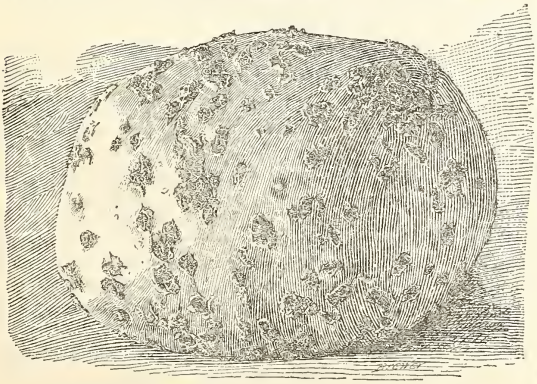
aroused concerning it. It realizes that good country roads are prerequisite for many important rural undertakings. They are prerequisite for better marketing, for better schools, for comfortable living, and for the promotion of social life.

There is obvious need of organization for sanitary purposes and for social development. Whether all these shall come through definite attack of private or public agencies or as by-products makes no difference; they must come. We can no longer entertain the notion that rural life shall remain isolated, disjointed, and unorganized. Its organization is a national, economic, and social necessity. It is more difficult to organize a scattered rural population than a concentrated one, but the great need is to give the rural population at least approximately the primary advantages which the town enjoys. The town is organization, and because of its organization and of its consequent advantages it has tended to attract to it the most ambitious youth of the country. The task of rural organization is difficult, but as the greatest educator of America has said: "The difficulty of a task constitutes no reason for declining it." And in this way lies the largest promise for national upbuilding and stability.

POWDERY SCAB OF POTATOES.

That the farmers of the United States lose over $30,000,000 every year from potato diseases is a statement that the United States Department of Agriculture considers as under the mark rather than otherwise.

The list of parasites responsible for this loss is a long one. Early blight, late blight, scab, blackleg, wilt, powdery dry-rot, and others are already widespread, and new troubles are discovered every year. Several of the worst plant diseases have come to us from foreign countries, and it was to exclude these unwelcome visitors that Congress passed last year a quarantine law under which potatoes from the British Isles, Germany, Austria, Newfoundland, St. Pierre, and Miquelon are now excluded on account of the wart disease, a dreaded pest which transforms the tubers into irregular, unrecognizable, black, warty masses.



Appearance of Potato Attacked by Powdery Scab.

More recently, as a consequence of the short potato crop in the United States this year, urgent demands have been made by importers that the quarantine be lifted. This has not yet been done. The Department of Agriculture is collecting more information prior to action, and has learned that another disease, the powdery scab, which has not yet a foothold in this country, may be introduced.

Powdery scab of the potato resembles to the untrained eye the common scab, but is in reality a markedly different disease, apparently of greater importance. As far as is known, it is not generally distributed in the United States, although it has been found in one or two localities. Every effort should be made to prevent the spread of this new disease by the destruction of all infected potatoes. It causes the formation of round pustules with raised edges, which may vary in size and number. (See illustration.) If they are numerous, the whole surface of the potato may become covered and the eyes destroyed. These pustules contain when mature or at harvesting time a brown dust. This powdery substance consists of countless small spore balls, which may remain alive in the soil for several years and infect the future crops.

The question now before the Department of Agriculture is whether this scab is of such a dangerous character that the exclusion of potatoes from all foreign countries where it occurs will be justified. Such a quarantine would involve Canada and probably nearly all European countries not already under the wart-disease embargo.

A really serious danger is presented by importations of potatoes from Prince Edward Island and New Brunswick, mainly through Boston, which it is proposed to use for planting next spring. Many of these Canadian shipments are infected with powdery scab, and farmers are cautioned against the use of Canadian seed potatoes for this reason.

WARNING AGAINST A PRESCRIPTION FRAUD.

The Department of Agriculture, under the food and drugs act, has recently been investigating a new trick of certain patent medicine and proprietary medicine vendors, which it is believed is deceiving a large number of people into spending money for patent medicines under the impression that they are getting regular physicians' prescriptions for nothing.

In a number of publications the department finds advertisements are appearing which state that the man or woman whose name is attached was saved from death from one of a number of serious diseases through some wonderful prescription given to him or her by a regular physician of unusual skill who will not allow his name to be used because of medical ethics. The advertisement states that the writer feels it to be a duty to communicate this invaluable recipe to humanity in order to save them from similar ills. The offer is then made to supply this prescription without charge to anyone who will address a post card to the adver-

tiser. People who do not stop to wonder who is to pay for the advertisement and the return postage and writing of the prescription are caught by this fraud and ask for the prescription. In due course a regular prescription is returned. This contains a number of ordinary ingredients and then, under a technical name, will call for a large proportion of some patent medicine or proprietary drug. The recipient takes this to a drug store to be filled, and the druggist finds that he has to buy some of this patent preparation in order to fill it. He therefore has to order a large package or bottle of it, and to make a profit must charge the customer a good, stiff price for filling the prescription. The customer, of course, gets what is in effect simply a patent medicine, which, save that it bears a druggist's label and a prescription number, is the same as a patent medicine sold under the maker's own label and in the maker's own bottle.

The Government can not reach these people under either the food and drugs act or the postal laws, because the scheme is so planned as to evade Government laws. The deception and misrepresentation appears in advertisements, circulars, letters, etc., separate from the package, and the medicines are seldom sent through the mails. The best the department can do, therefore, is to warn the people to be particularly suspicious of those who spend money for advertising space, postage, and letter writing seemingly out of their love for humanity. In all of these cases there is a profit-making scheme back of the seeming philanthropy.

ADVICE FOR THE PROFITABLE PRODUCTION OF HOGS.

"To produce pork profitably hogs must feed and graze continuously on pastures and crops particularly planted for them" is the advice of experts of the farmers' cooperative branch of the Bureau of Plant Industry, Department of Agriculture. "Very seldom is the growing of hogs for slaughter a source of profit unless proper grazing and feeding methods are followed.

"In the spring, summer, and fall there are many crops for pasturing hogs, but during the winter the crops to select from are limited. On almost every farm the production and keeping of hogs in winter is expensive, and generally it is not profitable for the reason that large quantities of corn are fed without products of green crops. More winter grazing is needed, for which many crops are adapted. The most reliable are rape, rye, oats, wheat, and barley. It is not too late to plant these crops and in most sections of the South this is the best season.

"For grazing purposes these pasturing crops for hogs should be sown on specially well drained and prepared land that is either rich or has received a liberal application of manure. Good winter pasturage is not obtained except on the best-drained lands.

"The seeding should be heavy to insure a thorough planting. The young plants will grow slowly in the winter and many plants will be needed to furnish plenty of pasture. Crimson clover will do well with rape, rye, oats, wheat, and barley and will mean an improvement on the land."

HOW TO MAKE STARCH FROM POTATO CULLS.

The potato clubs which the Department of Agriculture has been organizing to teach the young people of America to grow potatoes were primarily intended for boys. Certain girls, however, became interested, enrolled, and have done particularly well, not only in management of crop but in manufacturing home-made potato starch out of the unmarketable culls of the vegetable.

Each girl when she enrolls in this club work, which now is being taken up by 18,000 young people, is given a recipe for making home-made potato starch. The Office of Farm Management's specialist who is in charge of the potato-club work supplies each new girl member with a printed copy, which reads as follows:

Equipment needed.—Two clean galvanized tubs, large dish pan, one cylindrical grater, and plenty of water and wiping cloths.

Take 5 bushels of potato culls. Wash them thoroughly by the use of plenty of water and a small scrubbing brush.

Use one tub for cleaning potatoes and the other for the gratings. Seat yourself in a convenient place between the two tubs, with dish pan and grater in your lap.

Without removing the skin, grate your clean potatoes from right-hand tub into the dish pan, empty pan of gratings when necessary into the well-cleaned tub to your left; continue this operation until your left-hand tub is a trifle over half full. Pour clean water into tub upon the potato gratings until nearly full, stir well so as to saturate every particle of water.

Remove all peelings and floating material from top of water; allow tub to stand overnight, so that starch will settle to bottom and all pulp and potato skin will rise to the top of the water.

Remove all water carefully from tub in the morning, as well as the dark formation and sediment on top of the layer of starch.

Pour a fresh supply of water over starch again; stir again so as to rinse all particles of starch well; allow to stand for about eight hours.

Remove water from the top, the layer of pulp, etc. In doing so be careful not to waste the starch.

Continue this process with new applications and careful stirring, letting it stand each time—as many times as it is necessary to effect a complete separation of starch from the pulp, peeling, and sediment of the potatoes. It will usually take four or five washings.

Potato starch is a healthful food and can be used in at least a dozen different ways for food purposes in making puddings, salads, milk dishes, etc. It is both an easy and economical method of providing a valuable food product for the average home.

The potato water and wastes incident to the process can be easily utilized on the farm for hogs, poultry, and stock.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1912

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., DECEMBER 3, 1913 No. 17

HOW TO KILL AND DRESS A TURKEY.

The Selection of Live and Dressed Poultry.

The most common way of killing turkeys is to hang them up by their legs and stick them with a knife in the mouth, making one or two cuts diagonally across the roof of the mouth, while moving the point of the knife forward from the edge of the skull.

After sticking, the birds are brained by running the point of the knife under the eye or into the roof of the mouth in such a way as to strike the inside of the skull directly between the eyes. The knife may be slightly twisted when the point reaches the brain, the bird giving a characteristic quiver when properly brained, after which the feathers pick easily.

The feathers are usually picked in the following order: Flights, main tail, back, sides, breast, legs, and thighs. Turkeys are usually dry picked and shipped undrawn to market. The long wing feathers bring a good price on the market. The methods of killing and dressing turkeys and chickens are practically the same.

Market poultry is divided into several classes, which vary in different markets. In general there is a class called "chickens," which covers all chickens up to the age when the roasters get tough or "staggy," which is told by the growth of their spurs, which first appear as buttons, and the lack of flexibility of the end of their breastbone or keel. After this age cockerels are usually classed as stags or old cocks. Pullets may be classed on the market as fowls after they begin to lay, but are frequently classed as chickens until they are 1 year old.

Chickens are usually divided into broilers, those weighing under 2½ pounds; springs, weighing from 2½ to 3½ pounds; and roasters, 3½ pounds and over. Capons are unsexed males, which are not usually sold until they are over 6 months of age. In picking capons the feathers are usually left on the upper part of the neck and last two joints of the wing, including the long wing feathers (flights), tail feathers, and 2½ to 3 inches from the tail on the back and a few feathers around the hock joint of the legs. The breast and lower part of the body are picked clean. The comb is small and undeveloped in a capon. In dressing ducks, geese, and turkeys all the feathers are removed, except in the latter two the wing feathers are sometimes allowed to remain.

SELECTING LIVE POULTRY.

The bird should be healthy, as shown especially by its head points, such as a bright red comb and wattles and a clear, bright eye. A dark-colored comb and wattles, a dull, lusterless eye, and any mucous discharge from or swelling about the eyes or mouth show disease or poor condition. Poultry which are covered with pin feathers, especially if dark colored, are hard to dress neatly. In addition to health and condition, the bird should be well fleshed, which is best told by the amount of flesh on the back, the breast, and pelvic bones of the fowl. The flexibility of the rear end of the breastbone is the best indication of age in the fowl. This should be very soft and pliable in a young bird, and slightly stiffer and easily bent in a roaster or pullet, after which age this bone hardens and becomes large and blunt, according to the age of the fowl. The legs of young birds are smooth and become rougher and scalier as the bird grows older.

SELECTING DRESSED POULTRY.

The points used in selecting live poultry apply to dressed poultry, such as health and a well-fleshed condition. The appearance of the head is a good way to judge the health, age, and sex of a chicken. A matured fowl's comb is heavier and thicker than that of a young bird and larger on a male than on a female of the same breed; females are invariably plumper than males in all classes of poultry. The best dressed poultry are young and tender, as judged by the flexibility of the rear end of the breastbone. The breast is deep, long, straight, and well fleshed. The body is well fleshed over the back and pelvic bones, evenly colored, free from a reddish cast or red spots denoting poor bleeding, and neatly dressed. The flesh should feel soft and springy to the tips of the fingers. Poultry should be starved 12 to 18 hours before being killed so that the crop will be empty.

RECOMMENDS DISCONTINUANCE OF PRESENT METHOD OF SEED DISTRIBUTION.

In his recent address before the Forty-seventh Annual Session of the National Grange, Patrons of Husbandry, the Secretary of Agriculture made the following reference to seed distribution:

You may be interested to know that in the estimates just submitted to Congress it has been recommended that the distribution of ordinary vegetable and flower seeds be discontinued and that part of the $300,000 heretofore devoted to this purpose be used to procure, propagate, and distribute among the people new and valuable seeds and plants. If Congress sees fit in its wisdom to accept the recommendation, particular attention will be given to the securing and distribution

of new and valuable seeds and plants, including forage-crop seeds, whose character and quality will be thoroughly known and tested; and pains will be taken in every instance to see that a sufficient supply is sent to make it worth while for the individual farmer to make an experiment.

THE VALUE OF NATURAL SAND CLAY IN ROAD MAKING.

In view of the fact that at the beginning of the year no less than 90 per cent, or approximately 2,000,000 miles, of the roads of the country were of the ordinary earth type, it is important for the farmer to understand the best methods of improving such roads.

The Office of Public Roads advises the communities to have an engineer go over the old earth highways; or, in lieu of an engineer, that the farmers themselves should see to it that the roads are so graded that the ditches or gutters are parallel with the center line of the road. Gutters must have a uniform grade and be of sufficient capacity to keep the surface well drained. Drainage is the most important feature of an earth road.

Every farmer who lives in a section where both sand and clay are prevalent travels occasionally over some particular spot in the road which is always good and rarely requires attention from the road hands. Good drainage may be responsible for this condition, or it may be found on investigation that there is a good datural mixture of sand and clay forming the wearing surface. If this strip of road is always good, there is no reason why a surface of similar material on the entire road should not produce like results.

At the recent gathering of State highway engineers at the American Road Congress at Detroit, Mich., W. S. Keller, State highway engineer of Alabama, who has had long experience with sand-clay roads, stated that a natural mixture of sand and clay can nearly always be found where the two soils are found separate.

Analysis of the best natural sand-clay mixtures will show that the sand forms about 70 per cent of the whole. The test is simple. Weigh into an ordinary medicine glass 2 ounces of the dried mixture and wash out the clay. Dry the remaining sand and weigh again. The loss in weight will represent the amount of clay originally contained in the mass.

The theory of the sand-clay mixture as a road-building material is that the clay fills the voids between the grains of sand, firmly binding them together. After the material is found the process of building the road is simple. Before placing any sand-clay on the road the road should be graded to the desired width. Most engineers prefer to have a width for the road of about 20 feet, exclusive of side ditches, which are each usually about 3 feet wide. Sand-clay is cheap, and it is best that 16 feet of the graded width (20 feet) be surfaced. This will leave a 2 or 3 foot shoulder on either side. The surface of the graded road should be flat or slightly convex. The sand-clay should be put on from 8 to 12 inches in thickness, depending on the character of the subgrade or foundation. Where you have a hard clay for foundation, 8 inches of sand-clay will suffice. If the foundation is sand, it is well to put on as much as 12 inches of the surfacing material. After a few hundred feet of surfacing material has been placed, a grading machine should be run over it to smooth and crown the road before the top becomes too hard. It is a good plan to turn the blade of the machine out and trim the edges of the surfaced part, discharging the excess sand and clay onto the earth shoulders. After one round trip with the blade turned out the remaining dress work with the machine should be with the blade turned in, with the exception of one trip down the center of the road with blade at right angle to the axis of the road for the purpose of distributing any excess material left in the center.

After the machine work it is well to follow with a split-log drag, which smoothes any rough places left by the machine and leaves the road with a smooth, even surface. It must be borne in mind that a sand-clay road, unlike other roads, can not be finished in a short space of time. It can, of course, be left in an apparently finished condition with a hard, smooth surface, but it will be found on close examination that the hard surface is in reality only a crust, underneath which are several inches of loose material. After the first hard rain the crust softens, the road gets bad, and the work appears to be a failure. This, however, is just what is needed to make it eventually good. After the road has dried until in a plastic state it should be dragged until the surface is once more smooth, with the proper crown, and should be kept this way by dragging at least once a day until the sun has baked it hard and firm. The mistake of keeping traffic off during this process of resetting should not be made. The continuous tamping of the wheels of the wagons and hoofs of horses is just what is needed to pack the sand-clay into a homogeneous mass. The ordinary roller is not very effective in this work. It would appear, however, that a tamping roller, such as has been used in the construction of oil roads in California, would be very effective. A split-log drag is an indispensable machine in the construction of any kind of sand-clay road.

A good sand-clay road can be built in the South for from $500 to $1,500 per mile. In some places, where there is a good sand-clay foundation, it is even possible to build such a road for $300 a mile. The Office of Public Roads is laying stress upon the necessity for proper drainage and advises that "thank you ma'ams" (water bars) should not be substituted for pipe or box culverts across the roads. Outlets for gutters are needed at every low point and should be large enough to carry off the worst flood water quickly. To do this, the outlets should be built larger than is necessary to handle water from light rainfall.

MISBRANDING OF A DIP AND A SPRAY.

Notices of judgment have been issued by the Secretary of Agriculture in the cases of the United States *v.* 50 Cases of Chloro-Naptholeum Dip, and the United States *v.* The Crown Chemical Co., under the insecticide act of 1910.

In the first case the Government asked for the forfeiture of 50 cases containing cans of a misbranded insecticide called "chloro-naptholeum dip," found in the possession of the West Disinfecting Co., Atlanta, Ga. Misbranding was alleged in that the cases branded as holding 1-gallon cans of "chloro-naptholeum dip" held cans containing on an average less than 1 gallon; and that the packages branded as holding one-half gallon cans held cans containing on an average less than one-half gallon; that the packages branded as holding quart cans held cans containing on an average less than 1 quart of the insecticide.

The West Disinfecting Co. entered an appearance May 1, 1913, claimed the goods, admitted the allegations of the libel, and consented to a decree of condemnation. A decree was entered adjudging the article misbranded as alleged in the libel, condemning the goods, and ordering the same labeled in conformity with the law and sold by the United States marshal; except that the goods should be delivered to the West Disinfecting Co. upon payment by the defendant of all costs of the libel and the execution and delivery of a bond in the sum of $200 that the said goods would not be disposed of in violation of the law.

In the case of The United States *v.* The Crown Chemical Co. an information was filed on October 12, 1912, alleging the shipment by the Crown Chemical Co., Grayling, Mich., on May 15, 1911, of a quantity of a misbranded insecticide called "crown animal spray" from the State of Michigan into the State of Missouri. Misbranding was charged in that the packages were labeled as containing 1 gallon, net measure, whereas examination of specimens by the United States Department of Agriculture showed that the contents of the packages were less than 1 gallon, the average contents of the packages examined being 0.9058 of 1 gallon.

Upon the case coming on for trial April 29, 1913, the defendant, the Crown Chemical Co., appeared and entered a plea of guilty, and the court imposed a fine of $50 and costs.

TESTS AS TO WASTE, TENSILE STRENGTH, AND BLEACHING QUALITIES OF THE VARIOUS GRADES OF COTTON.

The United States Department of Agriculture has issued the following statement of tests as to the waste, tensile strength, and bleaching quality of the various grades of cotton as established by the Government. These tests were made in accordance with the last congressional appropriation bill, which directed the Secretary of Agriculture to conduct this investigation. The statement is as follows:

It was, of course, necessary, considering the nature of the experiments, that each bale of cotton used for this purpose be of very uniform character and exactly of the specified grade. It was not deemed wise to accept a lot of 10 or 12 bales which would merely average to be of the specified grade, as might be done in getting a lot for ordinary mill purposes. No bale was accepted unless, when the bands were removed and the bale opened up and sampled in 12 different places, it proved to be of very uniform character. Nevertheless, no serious difficulty was encountered in securing in the month of June, 1913, sufficient cotton for these tests, about 120 bales in all, 10 to 12 bales of each grade. In low-middling Atlantic States upland cotton it was necessary to accept a few bales of a slightly bluish cast, differing to a small extent in color from the box types of the official grades. Samples drawn from the accepted bales have been inspected by dozens of well-known experts from all parts of the cotton-growing and cotton-manufacturing regions of the United States, and these experts without exception declared the samples to be excellently selected.

Concerning the results of these experiments. the Department of Agriculture makes the following statements: The two classes of cotton, western upland and Atlantic States upland, have yielded a visible waste of slightly different weight and character, the average difference in percentage of waste being between 1 and 2 per cent, taking all the grades into consideration, that from the western uplands being slightly less than that from the Atlantic States upland. This difference obtained in the mill has been paralleled by carefully made hand separations. In the hand separations the average difference in waste was about 1¾ per cent. On the whole, as would be expected, the differences are considerably greater in the lower grades than in the higher grades.

The value of the visible waste from the various grades has yet to be determined, but from its character there can be little doubt that the valuation figures for the waste of the two classes of cotton will be approximately equal, weight for weight. As regards the relative amount of visible waste in the different grades, the figures are found to be more consistent than might have been expected. The mill waste in the experiments to date varies from about 4 per cent in middling fair to about 11 per cent in good ordinary, and it is satisfactory to note that the various official grades fall into line in this respect with something approaching mathematical uniformity.

Preliminary and approximate figures have been obtained concerning the tensile strength of the yarns. These tests show the yarn from the two classes of cotton to be about equal in strength.

It must be carefully borne in mind that the cotton used in these investigations was all of the same length of staple. Most of the Atlantic States upland cotton purchased probably came from the Piedmont and similar sections, in which, according to the Census Bureau statistics for the last five years, about half of the Atlantic States upland cotton is found to originate.

With the exception of 1 bale of western good ordinary no serious difficulty was encountered in bleaching.

Although these figures are the results of experiments on only one season's cotton, they are presented with confidence in their approximate accuracy so far as they go. The investigations have been carried out with much care under favorable auspices and have been attended with good fortune. Final figures will be ready for publication in the course of a few months.

EXTRAVAGANT PRICES FOR SUDAN GRASS SEED.

The marked success attending the introduction of Sudan grass into the United States and the limited supply of seed grown this year, due to the excessive drought, has led certain seed growers and dealers to ask unduly high prices for the seed. The high value of this grass has been demonstrated by the splendid results secured this season.

While the supply is small, no one group of dealers has a monopoly on the seed of this grass. It has been quite widely distributed by the Department of Agriculture for two years, and since it seeds freely, large quantities of seed will soon be obtainable at reasonable rates. The average farmer is not justified in paying $1 or $1.50 per pound for this seed, except for very small quantities to be used in growing his own supply of seed next year.

REPORTS FROM STATE EXPERIMENT STATIONS.

Florida.—The agricultural experiment station at Gainesville, in its Bulletin 117, on tomato diseases, deals with the causes, treatment, and remedies for rust, fungus, and bacterial blight, sclerotium blight, dropping of bloom buds, leaf curl, damping off, hollow stem, scab, and blossom-end rot. The latter disease has caused a considerable amount of loss in the tomato fields. Bordeaux mixture is usually recommended as a preventive.

The same station, in Bulletin 118, discusses sugar cane and sirup making, diseases of the plant and its enemies. The most serious enemy, it states, is the borer. Control is difficult once it becomes established in a field. To reduce the number of larvæ, burn the tops and rubbish as soon as sufficiently dried, cut the canes low, and destroy the shoots that start from the roots where cane is cut early. Plant in the fall, from sound canes only. Rotation of crops must be practiced in infested fields.

Connecticut.—The station at New Haven and Storrs has issued Bulletin 178, on the chestnut-bark disease. It says the disease is slowly and surely killing the tree in Connecticut.

Texas.—Beekeeping is the subject of Bulletin No. 158 of the station at College Station. The small beekeeper finds a good market locally for his honey, according to the bulletin, but the larger keeper does not, and is forced to ship. It is stated that the greater bulk of the honey raised in the State is consumed in the State, and the local demand calls for a much larger quantity than is annually produced in the State.

Kentucky.—The municipal abattoir is discussed in Bulletin 173 of the station at Lexington, in which plans for model abattoirs in the State are given.

Iowa.—Hogging-down corn as a successful practice is discussed in Bulletin 143 of the experiment station at Ames. It states that the hogs should not be turned into the cornfield without having been previously put upon a full feed of corn. It is a wise and necessary practice to feed green fodder cut from the field in conjunction with the old corn, gradually accustoming the hogs to the new ration. Hogs do better when an abundance of water and shade is provided.

IMPORTATION OF ANIMALS FOR BREEDING PURPOSES.

Since 1793 the various tariff acts, with the exception of the act of May 16, 1866, have provided for the entry free of duty, under certain restrictions, of pure-bred animals imported for breeding purposes. This provision is continued by paragraph 397 of the tariff act approved October 3, 1913. Such animals, to be admitted free of duty, must be recorded in a book of record recognized by the Secretary of Agriculture, and the certificates of registry and pedigree are to be submitted to the Agriculture Department. The Secretary of Agriculture is authorized to make such regulations as are deemed essential to determine the purity of breeding and the identity of such animals. In order to carry out these provisions a list of the various books of record which are recognized is published as Order 206 of the Bureau of Animal Industry. This order also gives directions for obtaining the department's certificates of pure breeding, which are required by the customs officials for the entry free of duty of animals imported for breeding purposes.

Paragraph 397 of the tariff act does not require the submission to the collectors of customs of the certificates of the foreign societies but permits the Agriculture Department to return them direct to the importers when the same have served the purpose of that department.

As paragraph 619 of the present tariff act provides for the entry free of duty of cattle, sheep, and swine, the collectors of customs will not require the certificates issued by the Department of Agriculture for the free entry of such animals. Consequently the only societies (pedigree associations) recognized at the present time under the provisions of paragraph 397 are those for horses, dogs, and cats.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1913

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., DECEMBER 10, 1913 No. 18

TO CONSIDER ADMITTING FOREIGN POTATOES UNDER RESTRICTIONS.

NOVEMBER 29, 1913.

Notice is hereby given that the Secretary of Agriculture has determined that the unrestricted importation of the common or Irish potato from the Dominion of Canada, Newfoundland, Great Britain, Ireland, and Continental Europe may result in the entry into the United States, its Territories and Districts, of injurious potato diseases, including the powdery scab (*Spongospora subterranea*).

In accordance with the provisions of section 5 of the act of August 20, 1912, a public hearing will be held at the Department of Agriculture, Washington, D. C., December 18, 1913, at 10 o'clock a. m., to determine whether restrictions, such as apply to the importation of nursery stock, should be imposed upon importations of potatoes from the countries named.

OBJECT OF HEARING.

The object of this hearing is to give opportunity for full discussion of a new proposition in relation to the entry into the United States of foreign potatoes, namely, as to whether it is possible to safeguard this country from known foreign potato diseases by introductions under permit of potatoes which have been inspected and pronounced free from infestation by foreign experts. The plant-quarantine act requires notice and public hearing before any articles can be thus brought under the requirements which now govern importations of nursery stock only. Should it be decided that it is feasible thus to safeguard the entry of potatoes, it will furnish a means of entry of foreign potatoes into our markets. Otherwise, the alternatives are either to exclude them absolutely by quarantine or to allow their free entry without any supervision or inspection to guard against disease.

This notice does not supersede the previous notice for a hearing on December 18 at the same time and place, called in accordance with section 7 of the act of August 20, 1912, to determine whether importation from the countries above specified should be forbidden on account of the presence of powdery scab and other diseases. This hearing also will be held in accordance with the appended notice, which is the legal phrasing of the more popular notice issued November 26:

FORMAL NOTICE OF HEARING ON POTATO QUARANTINE.

NOVEMBER 29, 1913.

Notice is hereby given that the Secretary of Agriculture has determined that there exists in the Dominion of Canada, Newfoundland, Great Britain, Ireland, and Continental Europe potato diseases new to and not heretofore widely prevalent or distributed within and throughout the United States, and that it may be necessary to forbid the importation into the United States of the common or Irish potato from the countries named in order to prevent the introduction into the United States of potato diseases, including powdery scab (*Spongospora subterranea*).

In accordance with the provisions of section 7 of the act of August 20, 1912, a public hearing will be held at the Department of Agriculture, Washington, D. C., December 18, 1913, at 10 o'clock a. m., to determine whether or not importations of the common or Irish potato from the countries above specified should be forbidden.

The order of September 20, 1912, forbidding the importation into the United States of the common or Irish potato on account of the existence of the disease known as potato wart or black scab from Great Britain, Ireland, Germany, Austria-Hungary, Newfoundland, and the islands of St. Pierre and Miquelon, is not affected by this notice and will remain in full force.

OLD PLANTS ADVERTISED UNDER NEW NAMES.

There has recently been a considerable amount of advertising, by the press and otherwise, of two beans for which highly extravagant claims are made, and for the seed of which exorbitant prices are being asked. One of these is being advertised under the name of the Shahon pea, with the absurd claim that on 3½ acres this plant produced 70 tons of hay and 350 bushels of seed.

The Shahon pea is nothing more nor less than the plant properly known as the Asparagus bean or Yard-long bean. It is a close relative of the cowpea—in fact, by most botanists considered a mere variety. In experimental tests with upward of 20 varieties of Asparagus bean this department reached the conclusion that none of them could possibly compete with the better varieties of cowpeas as a forage crop. The stems, as a rule, are much more slender and vining, and the long pods, which lie on the ground, can not be harvested by machinery. None of these 20 varieties is as productive, either in herbage or in pods, as the better varieties of cowpeas.

The Asparagus bean derives its name from the fact that the young green pods, when used as a vegetable, have somewhat the flavor of asparagus. As a vege-

table the Asparagus bean may come into somewhat more general use than it has in the past, but as a forage crop it has but little merit. Seed of the Shahon pea, which apparently is the commonest variety of Asparagus bean—namely, that having pinkish-buff seeds—is offered by the advertisers at $5 per pound. The same variety is offered by seedsmen in France, where the bean is more or less commonly grown, for 25 cents a pound.

Another plant which has been thoroughly tested, both by the department and the experiment stations—namely, the Jack bean—is also being extravagantly advertised under the name of the Giant Stock Pod bean, or the Wataka bean, the seed being quoted at $15 per bushel. This bean has been fully treated of in Bureau of Plant Industry Circular No. 110, which can be obtained from the department free upon request. While the Jack bean produces an enormous amount of beans per acre, they are not relished by stock, and no satisfactory means of utilizing them has yet been discovered.

MISBRANDED INSECTICIDES AND FUNGICIDES.

Notices of insecticide-act judgments have been issued recently regarding the following cases:

A fine of $200 was imposed on the James A. Blanchard Co., of St. Joseph, Mich., for shipment into Nebraska of misbranded lead arsenate, for shipment into Iowa of misbranded Paris green, and for shipment into Iowa of lead arsenate which was adulterated and misbranded. The lead arsenate shipped into Nebraska bore a label which stated that it contained 15 per cent arsenic oxide, which statement was proved false by analysis. Each package of Paris green that was shipped into Iowa purported to contain 1 pound net, whereas each package contained less than 1 pound net. The label on the adulterated and misbranded lead arsenate which was shipped into Iowa claimed soluble arsenic oxide less than seventy-five one-hundredths of 1 per cent, which statement was untrue.

A fine of $100 was imposed on the Blumauer-Frank Drug Co., of Portland, Oreg., for shipment into the State of Washington of Whale Oil Soap which was misbranded. The label stated: "This soap is highly and universally esteemed as a destroyer of moths, worms, lice, and all insects that infest plants, shrubs, and trees; it also operates as a fertilizer to the plant or tree." Tests by the Department of Agriculture showed that the product was not effective in destroying all insects that infest plants, and that it did not contain any substance that would act as a plant fertilizer. It also consisted partially of an inert substance, namely, water, which does not prevent, destroy, repel, or mitigate insects, and the name and percentage amount of the inert ingredient was not stated on the label, nor in lieu thereof were the names and percentage amounts of the active ingredients and the total percentage of the inert ingredient stated.

A fine of $25 and costs was imposed on the C. G. Betts Co., Spokane, Wash., for the shipment into Idaho of a quantity of insecticide called "Inland Lime-Sulphur Spray." Misbranding was alleged, because it consisted partially of water, and neither the name and percentage amount of this inert ingredient, nor in lieu thereof the names and percentage amounts of each and every ingredient having insecticidal or fungicidal properties and the total percentage of inert ingredient were stated on the label.

A fine of $25 was imposed on J. C. Pierson, of New York City, for shipment into Colorado of an insecticide designated "Stott's Fir Tree Oil Soap." The label on this mixture read: "Effective for killing scale, mealy bug, red spider, aphis, and all insects that infest plants. It keeps palms in a fine, healthy condition. It is an excellent wash for dogs." Misbranding was alleged for various reasons. The word "Stott's" on the label was considered misleading, as the name of the manufacturer was not "Stott," but was the Thompson Carbolic Soap Co. The insecticide also was not effective for killing San Jose scale, or for killing aphis and all insects that infest plants, and the statement on the label that it contained 85 per cent of soap was also discovered to be untrue. This insecticide also contained water, and neither the name and percentage amount of this inert ingredient, nor in lieu thereof the names and percentage amounts of each and every ingredient having insecticidal or fungicidal properties and the total percentage of the inert ingredient were stated on the label.

A fine of $25 was imposed on William Branson, Bloomington, Ill., who shipped to California an insecticide known as "insectonos." Official tests in the Department of Agriculture showed that the product was not effective to exterminate red spiders, as claimed in the label. Misbranding was also alleged because the article consisted partially of charcoal, and neither the name and percentage amount of this inert ingredient nor in lieu thereof the names and percentage amounts of each and every ingredient having insecticidal or fungicidal properties and the total percentage of the inert ingredient, were stated on the label.

A fine of $25 was imposed on Peter Kerr, Thomas Kerr, and Andrew Kerr, copartners, doing business under the firm name of Kerr, Gifford & Co., of Portland, Oreg., for the shipment into the State of Washington of a quantity of Hemingway's Pure Lead Arsenate which was adulterated and misbranded. The substance consisted of more than 50 per cent water, although the label stated that it contained only 50 per cent water. The label also claimed that it contained 15 per cent arsenic oxide and 32 per cent lead oxide, both of which statements were untrue, the product containing less than these amounts. The label also stated that the package weighed "2 pounds net," whereas each can contained less than 2 pounds net of the article.

LONGEST WAY AROUND SOMETIMES MOST ECONOMICAL WAY HOME IN ROAD BUILDING.

The average life of horses and automobiles may be increased and the cost of hauling reduced, according to the Office of Roads of the Department of Agriculture, by relocating many old roads and the more scientific laying out of new ones. The natural tendency in road building is to build a straight road, whether it goes over steep grades or hills, or not, and pulling over these grades naturally adds to the wear and tear on horses and vehicles.

The doctrine of the Office of Roads is that the longest way around may often be the shortest and most economical way home, and that frequently by building a highway around a hill or grade but little appreciable distance is added and this is more than offset by the reduced strain of hauling.

The chief drawback from the farm owner's point of view is that the laying out of roads on this principle of avoiding grades necessitates, in some cases, running the road through good farm land or orchards or pastures, instead of going around the farm line and building the road through old, worn-out fields and over rocky knolls. This, of course, must raise a question in the mind of the individual landowner as to whether the cutting up of his property by a road yields him individual advantages and so benefits his community as to offset the use of such land for a road, or to overcome the inconvenience of having his land divided. In this connection the Office of Roads points out that the running of a road and the resulting traffic through a good farm, where there are good sheep, cattle, horses, grain, fruit, or vegetables, has a certain advertising value and in many instances makes the land more valuable. In other cases the importance of such a level road to the community is so great that it might well repay those using the road to give the farmer the equivalent in land equally good in place of what he has sacrificed to the common welfare.

At any rate, the Office of Roads is now taking special pains to make clear the economic advantage of avoiding steep grades in their roads, even at some sacrifice of better land. Investigation shows that the laying of such roads over hills has resulted more from attention to the preservation of farm lines than from scientific attention to the problem of road building.

According to the testimony of farmers consulted, where a horse might be able to pull 4,000 pounds on a level road it would have difficulty in pulling 3,000 pounds up a steep hill. The size of the load, therefore, tends to be measured by the grade of the largest hill on the road to market. In a number of cases actual experiment shows that the relocating of roads around hills has been accomplished either with no addition in road length in some instances and with the adding of only a few feet to the highway in others. The office knows of no case where a properly relocated road which has cut out grades has led to any question as to its material reduction of hauling costs.

NEW FRUITS AND NUTS INTRODUCED, ADAPTABLE TO PARTICULAR LOCALITIES.

As the business aspects of fruit growing receive more definite recognition, varieties will be planted more and more to meet particular conditions and for special rather than for general purposes, states the Department of Agriculture Yearbook in discussing promising new fruits. For instance, under present conditions one of the most important requirements of a winter apple in many sections is that it have good cold-storage qualities. Summer apples were for a long period a minor commercial consideration, but for the past 10 or 15 years an important demand for them has developed in the eastern markets, which has greatly stimulated the planting of early-apple varieties in many sections where formerly they were little valued.

As the market demand for newer fruits increases and their culture becomes of greater commercial importance, new and better varieties or varieties better adapted to commercial needs will probably be developed. In the case of such fruits as the avocado and the mango, the commercial culture of which is comparatively new, there are as yet but few varieties in cultivation in this country.

The Eastman apple, now being cultivated in the upper Mississippi Valley, was planted and developed for the peculiar needs of this region, which is characterized by long, dry, cold winters. It has proved to be a remarkably early, regular, and prolific bearer.

Until recent years planters of pecan trees have been greatly handicapped in the selection of varieties because of the limited number of choice sorts which have shown special adaptability to particular localities. At present there are about 50 sorts of sufficient merit to make it possible to select varieties reasonably certain to succeed in any pecan-growing locality. Among these are the Burkett, Major, Owens, Warrick, and Havens.

The Burkett produces from 50 to 55 nuts per pound, and is of a roundish, oblong form; the Major produces from 85 to 90 nuts per pound, and has a roundish, oblong form, tapering slightly at the base; the Owens averages from 60 to 65 nuts per pound, and has an oblong, oval form, with tapering base and apex; the Warrick is rather below the medium in size, averages from 75 to 80 nuts per pound, has an oblong form, with a rather short apex but longer base; and the Havens variety is medium to large sized, averaging from 65 to 70 nuts per pound, and has an oblong form, with sharp base and blunt apex.

REPORTS FROM STATE EXPERIMENT STATIONS.

New Hampshire: The cost of milk production is discussed in Extension Bulletin No. 2 of the experiment station at Durham. The bulletin discusses the condition of the herd that was employed during the experiment, the valuation of feed and product, cows completing a year's work, the cost of keeping a cow per year, profit and loss of 203 cows, and the production necessary for profit.

Washington: The renewal of old orchards, the balanced ration, the blossom-end rot of tomatoes, the "woolly-bear" caterpillar, feeding for egg production, alfalfa in western Washington, and sweet clover are the subjects of the November bulletin of the experiment station at Pullman.

South Carolina: Alfalfa versus other hay crops is treated in Circular No. 19 of the experiment station at Clemson College. Adaptation of soils, injurious weeds, preceding crops, time of seeding, preparation of the land, liming, fertilization before planting, and inoculation are also discussed, as are seed, amount of seed per acre, planting the seed, fertilization after planting, cutting and curing the hay.

Alfalfa can be grown successfully and profitably on several types of soil in South Carolina, states the circular. Only a well-drained field, free as possible from noxious weeds, and at least fairly fertile, should be planted to alfalfa.

INCREASED PRODUCTION OF WHEAT, BARLEY, AND OATS IN EUROPE.

A cablegram from the International Institute of Agriculture, Rome, Italy, has been received by the United States Department of Agriculture, containing the following information:

The total production this year in the countries named below (the principal producing countries of the Northern Hemisphere) of wheat is 9.2 per cent more, of barley 7.5 per cent more, and of oats 0.8 per cent more than produced in the same countries last year: Prussia, Belgium, Denmark, Spain, France, Great Britain and Ireland, Hungary, Italy, Luxemburg, Netherlands, Roumania, Russia in Europe (63 governments), Switzerland, Canada, United States, India, Japan, Russia in Asia (10 governments), Algeria, and Tunis.

For European Russia the preliminary figures of production this year are all wheat 838,000,000 bushels, barley 550,000,000, oats 1,101,000,000.

RECENT PUBLICATIONS ISSUED BY THE DEPARTMENT OF AGRICULTURE.

BULLETINS.

A Normal Day's Work for Various Farm Operations. (Bulletin 3.)

The Southern Corn Rootworm, or Budworm. (Bulletin 5.)

The Agricultural Utilization of Acid Lands by Means of Acid Tolerant Crops. (Bulletin 6.)

The Western Corn Rootworm. (Bulletin 8.)

Game Laws for 1913: A Summary of the Provisions Relating to Seasons, Export, Sale, Limits, and Licenses. (Bulletin 22.)

Life Zones and Crop Zones of New Mexico. (North American Fauna No. 35.)

CIRCULARS.

Measles in Cattle. (Circular 214, Bureau of Animal Industry.)

Infectious Abortion of Cattle and the Occurrence of its Bacterium in Milk. (Circular 216, Bureau of Animal Industry.)

PUBLICATIONS OF THE WEATHER BUREAU.

Bulletin of the Mount Weather Observatory, vol. 6, part 1. (W. B. No. 511.)

Monthly Weather Review, vol. 41, No. 6, June, 1912. (W. B. No. 510.)

National Weekly Weather Bulletin Nos. 24, 25, 26, 27, 28, for September, 1913.)

FARMERS' BULLETINS.

Kafir as a Grain Crop. (No. 552.)
The Potato Tuber Moth. (No. 557.)
Pop Corn for the Home. (No. 553.)
Pop Corn for the Market. (No. 554.)
Agricultural Outlook. (No. 558.)

ADVICE FOR THE PROFITABLE PRODUCTION OF HOGS.

"To produce pork profitably hogs must feed and graze continuously on pastures and crops particularly planted for them," is the advice of experts of the farmers' cooperative branch of the Bureau of Plant Industry, Department of Agriculture. "Very seldom is the growing of hogs for slaughter a source of profit unless proper grazing and feeding methods are followed.

"In the spring, summer, and fall there are many crops for pasturing hogs, but during the winter the crops to select from are limited. On almost every farm the production and keeping of hogs in winter is expensive, and generally it is not profitable for the reason that large quantities of corn are fed without products of green crops. More winter grazing is needed, for which many crops are adapted. The most reliable are, however, rape, rye, oats, wheat, and barley. It is not too late to plant these crops and in most sections of the South this is the best season.

"For grazing purposes these pasturing crops for hogs should be sown on specially well drained and prepared land that is either rich or has received a liberal application of manure. Good winter pasturage is not obtained except on the best-drained lands.

"The seeding should be heavy to insure a thorough planting. The young plants will grow slowly in the winter and many plants will be needed to furnish plenty of pasture. Crimson clover will do well with rape, rye, oats, wheat, and barley and will mean an improvement on the land."

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1913

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., DECEMBER 17, 1913 No. 19

SUMMARY OF THE REPORT OF THE SECRETARY OF AGRICULTURE.

The Secretary of Agriculture published his annual report for the year 1913 on December 8. The report differs in many essentials from those usually sent out from the Department of Agriculture. Instead of merely reviewing the agricultural situation, many broad economic questions are presented. The Secretary calls attention to the facts that heretofore the Department of Agriculture has of necessity concerned itself mainly with the problems of production. He points out that these problems will be most urgent for a long time. Increased tenancy, absentee ownership, soils still depleted and exploited, inadequate business methods, the relative failure to induce a great majority of farmers to apply existing agricultural knowledge, and the suggestions of dependence on foreign nations for food supplies warn us of our shortcomings and incite us to additional efforts to increase production.

The Secretary says there is no ground for thinking we have yet approximated the limit of our output from the soil. As a matter of fact we have just begun to attack the problem. We have not even reached the end of the pioneering stage, and have only in a few localities developed conditions where reasonably full returns are secured. We have, however, unmistakably reached the period where we must think and plan. He says that as a Nation we are suffering the penalty of too great ease of living and of making a living. It is not singular, therefore, that we should find ourselves in our present plight. Recklessness and waste have been incident to our breathless conquest, and we have had our minds too exclusively directed to the establishment of industrial supremacy in the keen race for competition with foreign nations. We have been so bent on building up great industrial centers by every natural and artificial device that we have had little thought for the very foundations of our industrial existence.

MARKETING.

One chapter of the report is devoted to the subject of marketing. The Secretary points out that it is now becoming clear that we must definitely and aggressively approach these newer and, relatively speaking, urgent questions, and must direct our attention to the broader economic problems of rural life. We have suddenly been brought face to face with the fact that in many directions further production waits on better methods of distribution, but that the field of distribution presents problems which raise in very grave ways the simple issue of justice. That under existing conditions the farmer does not get what he should for his product; that the consumer is required to pay an unfair price; and that unnecessary burdens are imposed under existing systems of distribution, there can be no question. The various marketing projects are outlined. These projects cover marketing surveys, methods and costs of marketing, including available market supplies in given production areas; demand at consuming centers; cold and other storage systems; marketing systems and prices; and costs of wholesale and retail distribution of farm products. There are studies in transportation problems and the elimination of waste in transportation to be prosecuted; a study of city marketing and distribution, a study of grades, and finally cooperative production and marketing must be investigated. Special emphasis is laid on the necessity for standardizing agricultural products as a prerequisite to proper marketing.

Speaking of cotton and the necessity for uniform standards, it is stated that the adoption and application of one uniform standard would result in great simplification of all cotton transactions, doing away with the complex method of figuring buyer's limits. It would not be sufficient to have uniform grades, but the grade selected as the basis grade should be the same in all markets.

The point is made and emphasized that in this work of cooperative effort equity and justice must be kept in mind. Cooperation does not mean an organization which shall attempt to establish a closed market and to fix prices. We should condemn this as strictly in one field of industry as in any other. The aim should be an economic arrangement which shall facilitate production and lead the producer to standardize and to prepare his product for the market, and to find the readiest and best market for his product. Such actions will result in gain to the producer, as well as to the consumer.

RURAL CREDITS.

As a feature of cooperative effort attention is called to rural credits. There is a general impression that our financial arrangements do not satisfactorily cover the rural communities and there is need of better credit

arrangements for farmers. The interest is widespread. It is manifested by many letters received at the department, by articles in periodicals, by the action of various States, and by the thought of Congress in providing for a commission of inquiry abroad. It is clear, says the Secretary, that conditions vary widely in the United States, that farmers do not equally need better credit arrangements, and that all sections are not similarly circumstanced. In fact, from some sections comes the request not so much for capital at lower rates but for information as to how to invest capital. The Secretary shows that in taking action in this field of rural credits it would seem desirable that we bear certain guiding principles in mind. There does not seem to be any real demand or need for any action that would do more than provide as adequate financial machinery for the rural districts within practicable limits as are provided for other sections. There does not appear to be need for unique or special legislation, or for legislation which shall aim to give the farmer credit on easier terms than other members of society. What is needed, he feels, is the creation of conditions and machinery which will enable the farmer on similar credit foundations, to secure money at the same rates as those that prevail for other classes and for other sections. Present conditions do not seem to justify proposals to give any class of people capital provided by all the people through any device at lower rates of interest than economic conditions normally require or than those at which other classes secure it under similar conditions.

The broad questions of rural organization are briefly discussed. Before rural life can be made fully efficient, profitable, healthful, pleasurable, and attractive, and before a larger disposition to remain on the farm develops, many types of organization must have consideration.

HELPING THE FARM WOMAN.

Attention is called to recent investigations of the department to determine the status of the woman on the farm. The Secretary states that the woman on the farm is a most important economic factor in agriculture; that on her rests largely the moral and mental development of the children, and on her attitude depends, in great measure, the important question of whether the second generation will continue to farm or will seek an easier life in cities. To ascertain the fields in which farm women desire specific assistance, a letter of inquiry was addressed to the housewives of 55,000 farmers in all the counties of the United States. This letter asked no questions and left every woman free to discuss any need which occurred to her. Analyses of these letters, as far as time has permitted, already show that women want help in practically every phase of home management. Many express fear of the results of overwork on their children and themselves. The difficulties of securing domestic help are emphasized. Many ask the department to prove to the man that their work is worth something in dollars and cents. These letters have been extremely valuable in suggesting constructive methods of aiding the woman on the farm. Analysis of the letters will be completed and effort made to satisfy requests for assistance which lie properly within the department's province.

POPULARIZING THE DEPARTMENT'S WORK.

Important steps have been taken, it would seem, in the direction of popularizing the department's work. Changes have been made in the bulletins and a system adopted whereby the public is quickly informed as to new facts developed within the department. Information and material prepared and sent out may take the form of timely warnings against fraud in seeds and foods, notices of quarantine against plants and animals, advice as to means of combating crop and animal pests, or general information as to the handling of various crops.

RELATIONS WITH STATE AGRICULTURAL INSTITUTIONS.

Running through the Secretary's report is constant argument for closer cooperation and coordination with institutions within the States conducting agricultural work. It is argued that this is especially necessary in connection with the extension service; that is, the carrying of information to the people on the land. It is pointed out that the Federal Government is concerned with research problems, with regulatory problems, and with extension work; that is, carrying the discovered facts to the people. In the carrying of the facts to the people, the Secretary proposes to use the agricultural colleges within the States, believing that they are the proper agencies for reaching the people directly. The machinery for the conduct of this work and the bringing about of coordination and closer relationships is to be provided in an extension bill introduced by Hon. Hoke Smith, of Georgia, in the Senate, and Hon. Asbury F. Lever, of South Carolina, in the House.

REVIEW OF THE DEPARTMENT'S ACTIVITIES.

In a short general review of the department's activities, special emphasis is laid on the work of the Forest Service in administering the national forests. It is pointed out that the primary objects of the national forests are to protect the public timber, to produce a continuous supply of timber on land not required for agriculture, and to protect the sources of water used for navigation, irrigation, water power, domestic supplies, etc. The department is endeavoring to classify the national-forest lands and to segregate those valuable for agriculture. Every consideration, not only for the development of the States, but for protecting and increasing the use of the resources of the for-

ests, makes it desirable to further the agricultural development of land in the forests suited to farming. The administration of the national forests is a large business enterprise. The earnings last year were increased about $300,000, or approximately 15 per cent. Many forests now return more than their operating cost. The grazing policy and the water-power policy, in so far as affecting the national forests, are set forth. There are great power possibilities within the national forests. Already there are 76 developed projects and 30 under consideration. As the market for power increases there will be a much greater demand than at present, and the Government should make the power sites available under terms which will not only encourage the investment of capital, but fully insure the interests of the public.

GOOD ROADS.

A special chapter is devoted to good roads. For 20 years, it is stated, there has been a steady growth in the good-roads movement, so that to-day about 34 States have highway commissions or some other form of highway agency. State appropriations for road work have increased from two million 10 years ago to forty-three million in 1912. The relation of the Federal Government to road construction and road management is pointed out. The Federal Government should take the lead in investigational and experimental work and should develop principles of cooperation with the States in matters of educational and demonstrational work. It seems desirable that the Federal Government should deal with the State as the lowest unit, through an expert highway commission as its agency. This policy would eliminate the difficulty of the Federal Government's determining local issues as well as the danger of undue centralized Federal control. In order to stimulate this policy and to prevent undue inroads on the Federal Treasury, Federal aid, whenever extended for construction and maintenance, should be furnished on condition that the States provide an appropriation at least double that voted by the Federal Government. This would furnish an automatic check. The plan should provide for maintenance as well as construction, in order to prevent the possibility of the construction of roads many of which may wear out before the bonds placed upon them are paid. The Secretary raises the question as to what roads should be improved. He says that the roads of greatest economic and social importance are those over which the products of the farm can be taken to the nearest railway station and which minister to the other social and economic needs of the community. It is pointed out that no Federal funds should be expended on any project until a scheme of road construction and maintenance within a State has been developed and agreed upon by the proper representatives of the State and of the Federal Government.

Brief reference is made to the legal work of the department; to the Federal law protecting migratory birds, which passed Congress March 4, 1913; to the Federal quarantine act empowering the Secretary of Agriculture to regulate the importation of nursery stock; and to various other regulatory matters affecting foods and food products.

WORK IN CROP PRODUCTION.

Speaking of the constructive research and demonstration work in crop production, the Secretary calls attention to the various plant diseases, the work of the department in establishing standards in connection with cotton and corn, farm-management investigations, and the farm demonstration work in the South. In the matter of animal diseases and dairying, the department is working in various ways to foster and promote stock raising. Good progress has been made in the eradication of the cattle tick from the South. The territory released now amounts to 196,395 square miles, being greater than the combined areas of South Carolina, Georgia, Alabama, and Mississippi. In anticipation of the increased entry of foreign meat, the department has had two of its experts, one in Argentina and the other in Australia, ascertain whether these Governments maintained adequate supervision of their meat industries. The purpose of these investigations was to safeguard the American people from foreign meat which might be carriers of disease or which was slaughtered under conditions which would not be permitted in establishments within the United States. It was found that the inspection in those countries is quite competent.

THE CROP OUTLOOK.

Very brief space is allotted this year to a discussion of the crops in the United States. Special emphasis is laid on the fact that the figures quoted are estimates, and it is pointed out that this fact should be constantly kept in mind. From the estimates at hand it appears that the production of crops in 1913 was materially below the average, the yield per acre of all crops combined being smaller than in any year in the past decade with the exception of 1911. The corn crop, the most valuable product of this country, according to the estimates fell below 2,500,000,000 bushels, which is smaller than any crop since 1903. Wheat production, with an estimated total of 753,000,000 bushels, is the largest ever recorded in this country. This crop was matured before the drought became effective. Brief mention is made as to crop conditions throughout the world. From the estimates it appears that there were increased areas sown to wheat, oats, barley, rye, and corn, and that the wheat acreage has probably yielded a record outturn. Barley, oats, and rye are bountiful crops, but corn will probably give the poorest result in 20 years.

RECOMMENDATIONS.

The Secretary concludes his report with the following specific recommendations:

That authority be given to codify existing legislation affecting the department in order to more clearly define its duties and functions, and to prepare and submit to the next Congress a plan for reorganization with a view to broadening the work, unifying its efforts, promoting harmony and economy, and adjusting its relations with the States.

That legislation be enacted for effectively conveying existing agricultural information to the farmer. The methods recommended are embodied in a bill submitted simultaneously in the two Houses of Congress by Hon. Hoke Smith and Hon. A. F. Lever.

That the food and drugs act be amended to permit the establishment of legal standards for judging foods and for a broader definition of a "drug."

That if Federal aid is to be further extended in the construction and maintenance of highways, any legislation to that end should incorporate the principle of cooperation with the States on the condition that the States provide an appropriation at least double that provided by the Federal Government; that no Federal funds should be expended until a scheme of road construction and maintenance within a State has been developed and agreed upon; and that any money appropriated by the Federal Government should be apportioned on the basis of a number of factors.

That the name of the Bureau of Statistics be changed to the Bureau of Agricultural Forecasts, as indicating more clearly the nature of its work.

That the present broad authority for investigating the marketing and distribution of farm products be continued without change and that additional funds be provided.

That provision be made for the establishment of grading standards for various farm products and for the promulgation of the standards already established by the department for cotton and corn grades.

That special consideration be given to the problem of devising better rural credit facilities.

That the law be changed to permit the granting of term licenses on the national forests for the construction of hotels and summer cottages, and for similar purposes, with a view of promoting the recreational use of the forests.

That authority be given the department to cooperate with cities and towns in the safeguarding of the public health through sanitary regulations of the use of national forest watersheds.

That authority be given for the classification and addition to the national forests of public lands valuable only for forest purposes which are now exposed to fire and trespass and which often endanger the forests under protection.

That the law governing the development of water power within the national forests be modified to permit development under terms which will not only encourage the investment of capital but will fully insure the interests of the public.

That means and authority be granted to make more complete studies of domestic conditions on the farm, including the question of practical sanitation and hygienic protection for the farm home as well as labor-saving devices.

That certain modifications be made in the laws relating to the publications of the department to permit the more efficient utilization of its printing fund.

INCREASES.

That the salary limit of scientific workers in the department be raised.

That increases aggregating $1,074,387 be made in the appropriations of the department for the next fiscal year. The principal items in this increase are as follows:

For extending the work of eradicating animal diseases, the enlargement of the work in feeding and breeding live stock, for dairying, and for enlarging and enforcing the meat-inspection law, $250,860.

For the extension of investigations in connection with the introduction and breeding of new plants, the study and control of plant diseases, and the improvement of crop production, with particular reference to cereals, $45,660.

For the classification of agricultural lands and the survey of forest homesteads on the national forests, $143,577.

For extending the investigations of the handling, shipping, and storing of poultry, eggs, and fish, which are carried on in connection with the enforcement of the food and drugs act, $60,441.

For enlarging the investigation of fertilizer resources, soil-fertility investigations, and investigations of the chemical and physical properties of soils, $24,420.

For extending investigations in connection with insects attacking deciduous fruits, cereals and forage crops, and forest trees, $71,000.

For the enforcement of the migratory-bird law, $90,000.

For increasing the accuracy of crop forecasts and estimates, $57,000.

For extending the study of road management and investigations of road construction and maintenance, $113,550.

For investigations of the marketing and distribution of farm products, $144,000.

For the inauguration of live-stock and crop demonstrations in the sugar-cane and cotton areas of Louisiana, $50,000.

A recommendation has been made for the discontinuance of the present method of congressional seed distribution and the substitution of constructive work in the securing and distributing of new and valuable seeds and plants. This work can be done at a decreased cost of $146,000.

By reorganizations in the work of the Weather Bureau a saving of $37,340 can be effected, and yet the efficiency of the work can be increased. A decrease of the amount indicated has been recommended accordingly.

CROP DAMAGE FROM WEATHER.

Speaking at Cambridge, England, before a conference of agricultural teachers, the director of the British Meteorological Office ventured the opinion that bad weather cost the farmers of the British Isles an average of £20,000,000 (about $97,000,000) a year.

Throughout the world hailstorms alone are said to annihilate upward of $200,000,000 worth of crops annually, and this is but an episode in the warfare waged by the elements against the tiller of the soil.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1918

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., DECEMBER 24, 1913 No. 20

BOY AND GIRL CORN, POTATO, AND CANNING CLUB CHAMPIONS.

Over 75 farm boys and girls who as members of agricultural clubs have led their States in the production of corn, potatoes, cotton and tomatoes and in the home canning of their own garden produce, spent from December 11 to December 18 in Washington. The trip to Washington, the expenses of which were borne by individuals and civic, commercial, and agricultural organizations in the States, who are proud of the agricultural achievement of their sons and daughters, was one of the many rewards of these little champions. The boys and girls visited many points of interest in and about Washington, were received by many Government officials and obtained their coveted diplomas from the Secretary of Agriculture. The work done by these children was under the direction of the Office of Farmers' Cooperative Demonstration and the Office of Farm Management.

Of the corn club boys, Walker Lee Dunson, of Alexander City, Tallapoosa County, Ala., not only leads the country, but has broken the record for corn production. Walker raised 232.7 bushels on a single acre, at a cost of only 19.9 cents per bushel. This exceeds the previous record of 228.75 bushels, at a cost of 42 cents per bushel, held by Jerry Moore, of South Carolina. The second corn club boy this year is J. Jones Polk, of Prentiss, Jeff Davis County, Miss., with 214.9 bushels, raised at a cost of 21.4 cents per bushel, and the third was J. Ray Cameron, Kinston, Lenoir County, N. C., with 190.4 bushels, raised at a cost of 33.25 cents per bushel.

Of the girls, the leader in canning and tomato work is Miss Clyde Sullivan, of Ousley, Lowndes County, Ga., who put up 2,464 cans out of a yield of 5,354 pounds of tomatoes. The second place will probably go to Miss Lizzie Kelley, of Union, S. C., with a yield of 4,375 pounds of tomatoes, and third place apparently will go to Miss Lucy F. Bale, Augusta, N. J., who raised 3,980 pounds of tomatoes. Agnes Fridell, of Cedar Falls, Iowa, with 3,403 pounds, and Isabel Davis, Summerfield, Marion County, Fla., are also among the girls who have high yields for their tomato patches.

The following are the names of the boys of the corn club winners and the amount of corn raised on an acre, of the canning club girls and the amount of produce raised on one-tenth of an acre, and the potato club boys and girls and the amounts raised on one-eighth of an acre:

Boys' Corn Club Champions.

Name.	Address.	State.	Yield.	Cost per bushel.
			Bushels.	*Cents.*
Walker Lee Dunson	Alexander City	Ala	232.7	19.9
Joe Reed	Johnson	Ark	104.75	22
Jean Garner	Paragould	Ark	102.50	20
Russell Benson	Shannon	Ark	108	15
Wesley Pledger	Belleville	Ark	94	26
Floyd Peters	Okolona	Ark	100	48
Malcolm Miller	Baker	Fla	170.2	19.35
Edward J. Wellborn	Madison	Ga	181.72	30
W. Arthur Cooke	Owensboro	Ky	131.71	16.28
L. Z. Wardlaw	Red Oak	La	148.64	15.4
Walter Garner	Waldorf	Md	110.5	20.72
J. Jones Polk	Prentiss	Miss	214.9	21.4
J. Ray Cameron	Kinston	N. C	190.4	33.29
E. C. Morgan	Marietta	N. C	127.8	13
Elbert Cust	Rush Springs	Okla	100.79	9.92
Onie Minyard (cotton)	Indianola	Okla	(1)	.....
Ernest M. Joye	Venters	S. C	156	42
Clarence Nave	Elizabethton	Tenn	163.5	25
Roy Day	Slocum	Tex	136.5	10.6
John M. Henderson	Brithright	Tex	119	12.4
Henry Odor	Appomattox	Va	154.028	24.56
Arthur W. Runft	Reinbeck	Iowa	136.70	.....
Hoyt Quimby	Windsor, Vt	N. H	124	48.38
John B. Devine	North Hadley	Mass	[2] 117.42	32
Hieron Bloek	Burlington	Wis	112	.....
Charles Yohe	Tower City	Pa	110.86	38.05
Robert Mack	Robbinsville	N. J	103	39.80
Ormsby Scudder	Titusville	do	102	20.63
Jess Correl	Cambridge	Nebr	88	27.75
Grant Winters	Kewadin	Mich	87.07	.....
Walter Pflug	Papillion	Nebr	84	16.36
Wallace Mitchell	Hecla	S. Dak	73.50	14.62
Charles Waters	Cuyler	N. Y	40.20	77.86
Ernest Strohmeyer	Peetz	Colo	39.25	26
Illinois county champions.				
George H. Grosse	Des Plaines	.....	116	.....
Loren Hoffman	Waynesville	.....	112	13.79
Hershel Zeiders	Mansfield	.....	91.14	19.20
Marion Herriott	Mahomet	.....	90	13.33
Allen Furr	Shelbyville	.....	88.51	12.42
Harold Faith	Warrensburg	.....	87.39	13.74
Charles Johnke	Windsor	.....	72.50	56.55
Orville Sampley	Bethany	.....	70.92	11.84
Tilford Shoot	Charleston	.....	65	28.07
Myron Cuskaden	Arcola	.....	52.25	24.49

[1] 4,036 pounds cotton. [2] Raised one-half acre.

Girls' Canning Club Champions—Southern States.[1]

Name.	Address.	State.	Weight of fresh tomatoes.	Number of cans.
			Pounds.	
Erin Westbrook	Odenville	Ala	2,785	1,855
Fay Parker	Beebe	Ark	1,267	148
Isabel Davis	Summerfield	Fla	3,083½	902
Clyde Sullivan	Ousley	Ga	5,354	2,466
Bettie C. Davis	Hebbardsville	Ky	.....	1,019
Hazel McDavitt	Welsh	La	1,655	640
Sallie M. Strahan	Brookhaven	Miss	2,390	1,850
Margaret Brown	Charlotte	N. C	2,525	.....
May B. Brown	Charlotte	N. C	2,525	.....
Nona Farquharson	Guthrie	Okla	.....	150
Lizzie Kelly	Union	S. C	4,375	700
Myrtle Hardin	Camden	Tenn	1,778	209
Annie Davis	Jefferson	Tex	1,080	1,000
Margaret Hall	Burkeville	Va	1,144	202

[1] All put up a large quantity of miscellaneous products, such as preserves and catsup, which have not been counted.

Girls' Garden and Canning Club Champions—Northern and Western States.

Name.	Address.	State.	Championship.	Tomatoes.	Cost.
				Pounds.	
Lucy F. Bale	Augusta	N. J.	State	3,980	$53.77
Agnes Fridell	Cedar Falls	Iowa	do	3,403	25.26
Alberta Cutts	Chardon	Ohio	do	1,736	11.90
Celeste Crittenden	Burton	Ohio	do	2,665	9.15
Blanche Cloes	Chardon	Ohio	District	1,731	6.10
Mildred Tuttle	Thompson	Ohio	do	1,434	6.95
Hattie Holbrook	Bountiful	Utah	State		

Miss Holbrook is the winner of the first prize in the garden and canning-club work, and at the State fair won first prize in flowers and first prize in potato-starch making. She won second prize in sewing.

Ralph J. Walker, of Marlboro, Mass., is winner in market-garden work for the State of Massachusetts. He had four-tenths acre under cultivation; harvested $85.19 worth of vegetables.

Elmer Parker, 316 Baty Street, Elmira, N. Y., is champion of the Omeaga Club, winning his trip to Washington as a result of poultry-club work.

Miss Merle Steadman, Ames, Iowa, State champion in the cooking-club work for Iowa, has been awarded the trip to Washington.

Boys' and girls' Potato Club Champions—Northern and Western States.

Name.	Address.	State.	Championship.	Yield per acre.	Cost.
				Bushels.	
Merle Hyer	Lewiston	Utah	State	[1] 764	$60.00
William Peirce	Lincoln	Mass.	District	346	138.40
Cleon Hammond	Abington	Mass.	do	336	84.00
Catherine Slein	New Braintree	Mass.	do	290	127.60
Lawrence Estes	Windsor	Mass.	do	244	97.60

[1] One-half acre plat.

REPORT OF DISBURSEMENTS FOR AGRICULTURE AND THE MECHANIC ARTS AT COLLEGES FOR THE FISCAL YEAR ENDING JUNE 30, 1914.

The Secretary of the Interior, Franklin K. Lane, under date of December 3, submitted to the Speaker of the House of Representatives the following letter, showing disbursements for agriculture and the mechanic arts at colleges for the fiscal year ending June 30, 1914:

Pursuant to section 5 of an act of Congress approved August 30, 1890, entitled "An act to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts, established under the provisions of an act of Congress approved July 2, 1862," I have the honor to submit herewith a report of the disbursements for the fiscal year ending June 30, 1914, made in the States and Territories under the provisions of that act and of an act of Congress approved March 4, 1907, entitled "An act making appropriations for the Department of Agriculture for the fiscal year ending June 30, 1908," which provides for an increase in the annual appropriations for the colleges of agriculture and the mechanic arts made by said act of August 30, 1890.

The prescribed reports having been received from the several institutions benefited by this endowment, on June 25, 1913, I certified to the Secretary of the Treasury the following States and Territories as each entitled to receive the installment of the grant, $50,000, for the fiscal year ending June 30, 1914: Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Porto Rico, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, and Wyoming.

The total amount paid out each year by the Government to the States and Territories under these acts from their enactment to and including the installment for the year ending June 30, 1914, is as follows:

1890	$660,000
1891	704,000
1892	782,000
1893	864,000
1894	912,000
1895	960,000
1896	1,008,000
1897	1,056,000
1898	1,104,000
1899	1,152,000
1900	1,200,000
1901	1,200,000
1902	1,200,000
1903	1,200,000
1904	1,200,000
1905	1,200,000
1906	1,200,000
1907	1,200,000
1908	1,500,000
1909	1,750,000
1910	2,000,000
1911	2,250,000
1912	2,500,000
1913	2,500,000
1914	2,500,000
Total	33,802,000

CERTIFICATED IMPORTED BREEDING ANIMALS.

The Bureau of Animal Industry has issued, under date of December 9, a list of animals imported for breeding purposes in 1912 for which certificates of pure breeding have been issued by the Federal department. This list includes the names of animals, their registration number, the name of the importer, and the department number for the various breeds.

The following table shows the number of certificated cattle imported for breeding purposes during 1912:

Breed.	Bulls.	Cows.	Total.
Alderney	3	46	49
Ayrshire	23	392	415
Dexter	6	54	60
Guernsey	32	561	593
Hereford	5		5
Holstein-Friesian	3	7	10
Jersey	37	424	461
Shorthorn	25	70	95
Total	134	1,554	1,688

MISSISSIPPI BULL WINS HEREFORD CHAMPIONSHIP AT CHICAGO INTERNATIONAL STOCK SHOW.

The winning of the grand championship for Hereford bulls at the International Live Stock Exposition at Chicago by a Mississippi animal shows the great possibilities of the South for beef production. The winner is Point Comfort 14th, from Jackson, Miss. The Hereford is one of the principal beef breeds of

cattle, and the championship was won in competition with a large number of the finest specimens of the breed in the United States and Canada.

Point Comfort 14th was bred and raised in the tick region, and until last spring was on a farm within the quarantine for cattle ticks. Before the ticks were eradicated the owner lost some fine animals from Texas fever, but as a result of cooperative work with the Government and State authorities his farm and cattle are now free of the tick pest. The owner sold at the show a yearling for $575 and a calf for $440 for shipment to Montana and New Mexico. His success at Chicago shows what can be done with fine cattle in the South, and should give an impetus to the work of exterminating the ticks. This section is naturally well adapted to cattle raising, and with the eradication of the ticks and the introduction of better stock it may be expected to contribute largely to the country's beef supply.

PARTIAL LIST OF PUBLICATIONS ISSUED IN NOVEMBER.

Copies of any of the publications listed herein, except publications of the Weather Bureau, may be obtained free upon application to the Division of Publications, United States Department of Agriculture, Washington, D. C., as long as the department's supply lasts.

REPORTS.

Report of the Chief of the Bureau of Biological Survey, 1913.
Report of the Entomologist, 1913.
Report of the Director of the Office of Experiment Stations, 1913.
Report of the Federal Horticultural Board, 1913.
Report of the Insecticide and Fungicide Board, 1913.
Report of the Director of the Office of Public Roads, 1913.
Report of the Chief of the Bureau of Soils, 1913.
Report of the solicitor, 1913.
Report of the Chief of the Weather Bureau, 1913.

BULLETINS.

The Refrigeration of Dressed Poultry in Transit.
Bouillon Cubes: Their Contents and Food Value Compared with Meat Extracts and Home-made Preparations of Meat.
Experiments in Bulb Growing at the United States Bulb Garden at Bellingham, Washington.
Crew Work, Costs, and Returns in Commercial Orcharding in West Virginia.
Cereal Investigations at the Nephi Substation. (In Cooperation with the Utah Agricultural Experiment Station.)
An Example of Successful Farm Management in Southern New York.
Studies of Primary Cotton Market Conditions in Oklahoma.
Seed Selection of Egyptian Cotton.
Experiments in the Use of Sheep in the Eradication of the Rocky Mountain Spotted Fever Tick.
Lessons for American Potato Growers from German Experiences.
The Use Book: A Manual for Users of the National Forests.

FARMERS' BULLETINS.

The Agricultural Outlook. Contains estimates of the amount and value of the principal Crops produced in the United States in 1913. Pp. 14. (Farmers' Bulletin 563.)

SEPARATES.

Drainage Investigations, 1911–12.
Farmers' Institutes and Agricultural Extension Work in the United States, 1912.
Progress in Agricultural Education, 1912.

PUBLICATIONS OF THE WEATHER BUREAU.

Publications of the Weather Bureau are obtainable only from the Chief of the Weather Bureau or the Superintendent of Documents, Government Printing Office, at the prices noted herein.

Monthly Weather Review, vol. 41, No. 8, August, 1913. Maps, 2. Price, 35 cents; $4 a year.

National Weekly Weather Bulletin No. 30, for November, 1913, reporting temperature and rainfall, with a summary of weather conditions throughout the United States. (Weekly April-September, Monthly remainder of year.) Price, 25 cents a year.

GERMANY FINDS THAT POTATO GROWING IMPROVES SOIL PRODUCTIVITY.

American potato growers will be interested in the fact that German farmers have found that many indirect benefits result from potato culture, through modern methods of crop rotation, green manuring, and fertilizing. In a recently issued bulletin, entitled "Lessons for American Potato Growers from German Experiences," the department's specialist describes, among other things, how eastern Germany benefits from the cultivation of the potato.

The potato has played the greatest rôle in the agricultural development of light and fertile soils of this region, as the sugar beet has done in heavier soils. According to German specialists, these hoed root crops are beneficial to any soil, through the deep and thorough culture that is given them, with its resultant improvement in the physical condition and aeration.

The profits from the crop justify the liberal use of commercial fertilizers, from which there are important residual effects on other crops in the rotation. The clean culture practiced also brings all weeds into thorough subjection. The yields per acre of all farm crops have been greatly increased since the extension of potato growing.

Potato tops are now dried and used for stock food on many estates. The by-product, mash, resulting from the distillation of potatoes into alcohol, is also an important economical factor.

While we have, in fact, better soils than Europe in almost unlimited area adapted for potatoes, our hot summers injure the potato plant, where they aid in the development of our great grain crop, corn. In the corn belt there can never be profit in growing potatoes in excess of those needed locally for table use. Corn can be produced more economically, is better for stock feeding, and is a cheaper source of starch and alcohol. Farther north, however, and in the elevated western districts where corn can not be raised, potato growing has a greater future.

However, vast deposits of petroleum will also offer competition indirectly to the potato, as at present there is not the need in this country that there is in Germany for potato alcohol. Nevertheless, we are using up our great petroleum resources, and the time may not be far distant when the distilling of alcohol from potatoes may become an important industry.

EFFECT OF OATS ON FLAVOR OF MILK.

It has been asserted by some dairymen that the feeding of crushed oats to cows will improve the flavor of milk. To ascertain the correctness of this theory a series of experiments was made by the Bureau of Animal Industry of the United States Department of Agriculture at the experimental dairy farm at Beltsville, Md. Six cows were used in the experiment; three were fed a grain ration of corn meal, bran, and cottonseed meal; the other three were fed a grain mixture of five parts crushed oats and one part cottonseed meal. A number of samples of milk from the cows fed these rations were submitted to various persons in the dairy division and they were asked to indicate their preference. In all 50 opinions were passed on various samples. Of these, 16 showed a preference for the milk from cows fed on crushed oats, 25 preferred that from the bran and corn ration, while 9 expressed no choice. The results show that in these rations, not only was there no marked difference in favor of the crushed oats as a feed to improve flavor, but, if anything, the ration containing bran and corn was more successful in producing a fine-flavored milk.

GROWTH OF THE FARMERS' INSTITUTE.

The growth of the farmers' institute movement in the United States during the last decade has been steady. In the season of 1902–3 there were held 9,570 sessions of institutes in 41 States, as compared with 20,640 sessions held in 1912–13. The attendance in 1902–3 was 904,654; in 1912–13 it was 2,897,391 at the regular institutes. The increase in attendance at each session was 49 per cent, or from an average of 94.53 to 141. The appropriations increased from $187,226 to $510,784.

During the past year, notwithstanding the large growth of the extension movement by the agricultural colleges, the regular institutes have increased in attendance 346,192 and in the average number per session from 131 to 141.

Although institutes were held by all of the States and Territories in 1913 excepting Louisiana, Nevada, Alaska, and Porto Rico, returns have been received from only 41 as against 45 last year. The States not reporting held 388 sessions in 1912, attended by 34,974 persons. If these States have held institutes in 1913 equal to those of 1912, the totals would be increased to 21,028 sessions and 2,932,365 attendance, or an increase of 1,598 sessions and 381,166 attendance, over the previous year. The institute has increased its constituency until it now numbers about 3,000,000 of rural people.

There is no way of accurately estimating the increased efficiency of the institute worker in recent years excepting that in the face of all of the other enterprises looking toward rural betterment he has not only maintained his position among educators as a teacher of advanced agriculture, but in the last decade his audiences have increased over 200 per cent. It should be stated that this entire movement has been initiated and conducted without national appropriation for its support and with a minimum amount of departmental aid, thus exhibiting an initiative vitality and capacity for service of the body of farmers.

REPRESENTATIVES OF 25 NATIONS DISCUSS FARMERS' WELFARE.

THIRD INTERNATIONAL CONGRESS OF AGRICULTURAL WOMEN HELD.

In connection with the great exposition at Ghent, Belgium, during the past summer, there was held the regular session of the Tenth International Congress of Agriculture. This was followed by the Third International Congress of Associations of Agricultural Women, and the Second International Congress of Housekeeping Instruction. A recent issue of the Experiment Station Record gives an interesting account of the doings of these congresses.

The Congress of Agriculture provides an opportunity to the nations for a free discussion of the ever-changing problems in country life and an exchange of views on the subject. There were 25 countries represented at the recent session at Ghent, and some very interesting conferences took place, although many of the questions considered were of application exclusively to European countries rather than to this country. The United States' delegate to the Congress was Dr. A. C. True, of the Office of Experiment Stations of the Department of Agriculture.

The main topic selected for discussion in the congress was rural depopulation. The French representative presented statistics to show that the farmer was leaving the farm in such numbers as to diminish the wheat and beef production of the world to a considerable degree. The remedy for the depopulation of farming districts, in his opinion, lay in increasing the attractiveness of rural life.

Considering the closeness of relations between European countries, it is very important that agricultural matters concerning all be discussed in congresses of the sort just held. The United States, although our conditions of country life are different from those in Europe, may learn much from these discussions, and especially may see the importance of studying agricultural conditions in a broad manner, with a view to shaping the development of our farming communities along permanently satisfactory lines.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1913

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., DECEMBER 31, 1913 No. 21

SPECIAL NOTICE TO CROP CORRESPONDENTS.

The Weekly News Letter hereafter will be sent direct to the editors of the county-seat and town newspapers. This action was taken at the request of a number of crop correspondents who complained that furnishing their copies of the News Letter to editors made it impossible for them to keep complete files. It therefore will be no longer necessary for crop correspondents to supply the editors with their copies, although they can render excellent service by calling to the attention of the editors items which will be of value for local publication.

POTATO QUARANTINE DECISION.

The Secretary of Agriculture, on December 22, issued two orders relating to the admission of foreign potatoes into the United States.

One of these orders provides for the admission of disease-free potatoes from uninfected foreign districts under proper regulation and inspection.

The other order, to protect American potatoes from the powdery scab and other diseases, temporarily extends the quarantine effective since September 20, 1912, against the importation of potatoes from Newfoundland; the islands of St. Pierre and Miquelon; Great Britain, including England, Scotland, Wales, and Ireland; Germany and Austria-Hungary, to include also the rest of Continental Europe, and the Dominion of Canada. This quarantine will become effective on December 24, 1913, except that shipments covered by consular invoices on or prior to December 24, 1913, will be admitted up to January 15, 1914.

As soon as any country or district can be shown to be free from potato diseases, the quarantine will be lifted and potatoes will be admitted under proper regulation and inspection, as provided in the first order. It is possible that, in the case of certain Provinces in Canada and certain countries and districts in Europe, the absolute quarantine can be lifted in time to allow the later movement of the present year's crop under regulation and inspection.

TO ADMIT POTATOES UNDER REGULATION AND INSPECTION.

The order relating to the admission of potatoes under inspection extends to potatoes and the nursery stock regulations of the plant quarantine act. This means that in the future no potatoes can be imported until the importers have secured permits from the Federal Horticultural Board similar to those now issued to importers of nursery stock. Potatoes, to be admitted, must be certified by the Government of the country of origin to be free from dangerous diseases and insect pests new to or not widely prevalent in the United States, and must have been grown in a district free from wart disease and powdery scab. Regulations governing these importations will soon be issued, and steps will at once be taken to complete arrangements with foreign Governments for the survey and designation of disease-free districts.

NEED OF FOREIGN POTATOES.

The present potato excitement is apparently due to a misinterpretation of the yield of this year. The statistician of this department estimates that the yield of this year is 331,525,000 bushels, which is considerably above 10-year average and exceeds the annual food and planting consumption of the potato in the United States. The price of potatoes in centers of origin is still reasonable or low, and the problem seems to be one merely of distribution. The testimony from all parts of the country, as given at last Thursday's hearing, was that no shortage exists at present above usual market demands, but that the supply in farmers' hands is large. Farmers, as well as dealers, denied the charge that speculators had acquired control of the potato crop. Farm prices have been low for some weeks.

The total importation from foreign countries during the six years prior to the quarantine were only 1.27 per cent of the total consumption. Imports varied from 177,000 bushels in 1906 to 13,000,000 bushels in 1911, a year of short American production due to drought, when the crop was estimated at over 38,000,000 bushels less than the estimate for 1913.

CONDITIONS WHICH SHOULD GOVERN IMPORTATIONS.

All experts, foreign as well as our own, agree that no inspection of potatoes from a district known to be infested will be of any real value whatever in excluding diseases.

The necessary conditions governing importations are, therefore, (1) freedom of the country or well defined district from the diseases quarantined against, such freedom to be determined by adequate field inspections conducted by recognized experts of the countries concerned; (2) agreement of the country or district to maintain yearly such field inspection, and to examine and certify all potatoes offered for export, in compliance with the regulations of the Department of Agriculture.

SUMMARY OF THE EVIDENCE BEARING ON THE POTATO QUARANTINE PROMULGATED DECEMBER 22.

THE IMPORTANCE OF THE POWDERY SCAB DISEASE.

The disease is fully as injurious as the potato scab, which reduces the value of the affected potato in the American market three-fourths.

No means of control are known, whereas the potato scab is controllable.

Powdery scab affects the soil for an indefinite time, and may be introduced by the use of diseased seed potatoes, and may be transmitted by contaminated sacks or other containers, or garbage waste used as fertilizer.

It has invaded large potato areas in eastern Canada from European seed stock.

THE IMMEDIATE DANGER TO THE UNITED STATES.

Diseased potatoes are now coming to the United States in shipments from Canada, Belgium, and Holland, as shown by repeated examinations at the ports of Boston, New York, and Philadelphia. Nearly 50 per cent infestation has been found in some of these shipments. The disease occurs also in France, Norway, Sweden, and Germany.

VIEWPOINT OF AMERICAN GROWERS AND DEALERS.

Prior to and at the hearing the strongest possible statements were made by pathological experts from all of our principal potato-growing States urging the strictest quarantine on account of this disease.

Similar action was taken by representative potato growers from these States.

Some of the largest dealers and associations handling foreign potatoes indicated their perfect willingness to have quarantine action taken if the disease was of such importance as to warrant it, and in some instances presented very strong and urgent appeals for such quarantine.

The opposition from American importers and dealers was confined to the statements of a small number of importers or handlers of imported potatoes.

EUROPEAN TESTIMONY.

The following statements are taken from official reports of European specialists:

"The powdery scab has a good deal to do with the miserable average yield per acre of potatoes in the west of Ireland." (Johnson, Royal Dublin Society.)

* * *

"It was found during the past season that the crop resulting from the planting of the canker (powdery scab) in clean land gave 67.1 per cent of affected tubers, while the spot form (less advanced stage of the disease) produced only 54.1 per cent. It was also proved that clean seed may become contaminated before planting by contact with diseased seed, for such tubers planted in clean land produced 17.1 per cent by weight of affected tubers." (Journal of the Department of Agriculture for Ireland, 1911.)

"The disease can by no means be regarded lightly. Serious attacks occur when potatoes are planted year after year on affected land. * * * No preventive measures have proved of much value." (Dr. Gussow, Dominion Botanist of Canada.)

"These tubers should on no account be used for seed purposes, for not only will the resulting crop be scabby, but the ground will also be affected with the germs of the parasite." (Evans, Farmers' Bulletin, Transvaal Department of Agriculture.)

REPRESENTATION OF FOREIGN DELEGATES.

Canada admitted serious infestation of eastern Provinces, but urged a provision for exportation from disease-free Provinces under regulation.

Representatives from Belgium and Holland maintained freedom from disease, and explained the infested condition of potatoes at our ports of entry with the statement that these were probably of German origin and shipped by unscrupulous dealers as Holland and Belgium potatoes. The evidence in the hands of the board, however, indicates that the disease does occur in these countries.

Canada's point of view toward Europe is shown in having quarantined absolutely against every European country, including Great Britain and Ireland, and against the neighboring Province of Newfoundland.

TO AIDS OF COUNTY CORRESPONDENTS AND STATE STATISTICAL AGENTS.

DECEMBER 31, 1913.

The Bureau of Statistics (Agricultural Forecasts) is not brought into immediate touch with three important classes of voluntary correspondents, namely, the Aids to Special Field Agents, to State Statistical Agents, and to County Correspondents, and takes this means of expressing to them its appreciation of their cooperation. Although the reports of these correspondents do not reach the bureau, their estimates of local crop conditions have a large influence upon the Government's official forecasts and estimates.

The reports of the Aids to the State and Field Agents afford to the Agent the necessary basis, in conjunction with his own personal investigations and general knowledge of State conditions, to estimate with considerable assurance the actual State averages. The County Aids perform a like service in their cooperation with the County Correspondent.

The information furnished from these three sources and from the reports of township correspondents, which are sent direct to the bureau, form the principal basis of the Government crop estimates.

As a result of the many years of practical experience in utilizing the estimates of voluntary correspondents, this bureau has great faith in the substantial accuracy for comparative purposes of the figures obtained from this source. Such reports before being used are always carefully examined with a view to detecting and omitting the errors and inconsistencies that occasionally appear in them.

It is desired that the voluntary aids who do not report direct to the bureau will understand that they are entitled to all of the courtesies extended to those who report direct; that it is the endeavor of the bureau to furnish them with its reports and such of the

publications of the department as may appear to be of particular interest to them in their several localities, and that it stands ready at all times to perform for them any proper service within its power.

In subsequent issues of this publication it is hoped to carry occasional suggestions to voluntary correspondents concerning their work, and the bureau will be at all times pleased to receive from them any suggestions having in view the improvement of the crop-reporting service, or to answer inquiries concerning any feature of the work.

HOW THE FARMER CAN USE THE FACILITIES OF THE UNITED STATES DEPARTMENT OF AGRICULTURE.

That the individual farmer may obtain a better understanding of the fields in which the Department of Agriculture can help him, the News Letter is printing from time to time brief explanations of the department's different offices and their economic value.

BUREAU OF PLANT INDUSTRY.

The department's work is handled by its various bureaus, each bureau concerning itself with a special phase of the work. The Bureau of Plant Industry is one of the most important of these bureaus. It studies plant life in all its relations to agriculture. The scientific work of the bureau is divided into 29 distinct groups, over each of which is placed a scientifically trained officer, who reports directly to the chief and assistant chief of the bureau.

An explanation has already been given (in News Letter, Vol. 1, Nos. 9 and 11), showing how certain of these offices help the farmer fight crop diseases. Herewith is given a second article dealing with another phase of the work of the Bureau of Plant Industry.

HOW CROPS SUITED TO PARTICULAR LOCALITIES ARE INVESTIGATED FOR THE FARMER'S BENEFIT.

OFFICE OF FORAGE CROP INVESTIGATIONS.

This office investigates forage crops and endeavors to determine which crops are best suited to particular localities. It endeavors to determine the best mixtures to use in establishing meadows and pastures, and gladly furnishes information to the farmer regarding alfalfa, clover, sorghum, timothy, or any other forage plant which might be suited to his district.

For the farmer of the West the office is endeavoring to find out what forage crops will grow on arid lands without irrigation. It is also trying to secure better seed crops. Alfalfas from all parts of the world are being tested to find adaptable varieties. Some of the new alfalfas have been found to be of high value in limited localities; as Peruvian alfalfa in the extreme Southwest.

For the farmer in the East the office is also endeavoring to determine under just what conditions alfalfa culture may be made successful. It has discovered that these conditions are a deep well-drained fairly fertile soil, an abundance of lime, inoculation, and proper time of seeding, so that the young alfalfa plants are not smothered by weeds.

For the farmer in the North the office is endeavoring to breed alfalfas that will withstand very cold winters. It has found that the yellow-flowered alfalfas from Siberia are satisfactory and that this character may be transmitted to hybrids with ordinary alfalfa. The Grimm alfalfa grown with such marked success in Minnesota and the Dakotas is a practical demonstration of this satisfactory breeding.

The semiarid States are particularly interested in sorghum and the investigations of this forage crop are mainly conducted in these States. Exceedingly important new varieties have been introduced, namely, Feteria, a grain-producing variety which is more resistant to droughts than any other yet grown, and Sudan grass, which is especially adapted for hay production in regions of light rainfall.

Red-clover seed, soy beans, and timothy are other important forage crops with which this office is concerned. Better seed crops of red clover are being developed because of the unusually high price this seed has brought in recent years. The soy bean is one of Manchuria's most valuable products, both because of the bean and the oil yielded. The Department of Agriculture's scientists, however, see no reason why this should not be a very valuable crop in this country as well. The office, therefore, is offering every assistance to those interested in its introduction.

As timothy is the most important hay grass of the United States, the Office of Forage Crop Investigations is now breeding improved varieties. The office announces that it hopes to increase the yield of this crop as much as 25 per cent by growing superior high-bred strains instead of the mixture of strains now found in every field.

Any forage crop seeming to offer the slightest possibility of increasing the yield of any particular locality is investigated by this branch of the Bureau of Plant Industry.

OFFICE OF ALKALI AND DROUGHT-RESISTANT PLANT INVESTIGATIONS.

The drier parts of the United States, particularly those where the soil contains much alkali, are considered in the work of this office. Its object is to determine why some kinds of crop plants will withstand alkali and drought better than others and to breed varieties that will be economically valuable in dry sections of the country. When an improved strain of any crop has been obtained, its seeds are distributed to farmers in the central and northern portions of the Great Plains.

As a result of experiments the office knows which crops are most economical in their use of water, and can supply this information to any one requesting it. New strains of alfalfa, sorgo, and millet which the office has bred in the Great Plains region have been shown to be well adapted to dry farming conditions.

Suggestions can also be furnished the agriculturist as to just what crops are most likely to succeed in alkali soils. Arizona and southern California should be particularly interested in the fact that Egyptian cotton has proved one of the most successful crops in the alkali soils of that region. The office has developed an improved variety of this cotton and has distributed seeds of it to farmers. About 4,000 acres were grown in Arizona this year and large yields obtained. Farmers have found Egyptian cotton to be one of the best crops for lands damaged by seepage and alkali.

That the natural vegetation is a good indicator of the probable productiveness of dry-farmed or irrigated land is a conclusion of the department's scientists after investigation of the Great Plains and Great Basin regions.

OFFICE OF BIOPHYSICAL INVESTIGATIONS.

The crop problems of farmers in the dry-land districts are also the special consideration of the Office of Biophysical Investigations. As its name indicates, this office studies the influence of physical surroundings on the growth of crops and draw practical conclusions as to how much water crops need in order to thrive.

This office cooperates with the office that deals with the development of crops on alkali and dry lands, described above. For instance, both offices are now working together in the irrigated orchard sections of Colorado and California to determine how alkali in the soil and a deficient moisture supply affect "leaf burn" and "mottle leaf" in orchard trees.

Electricity has been used to promote the growth of plants and vegetables and this office is endeavoring to discover just how important this feature may become in stimulating plant growth. Other physical problems connected with the Bureau of Plant Industry are taken up by this branch of the department.

DRUG PLANT INVESTIGATIONS.

This office in one phase of its work is investigating the possibility of growing medicinal, condimental, and aromatic plants on a commercial scale in the United States. The field work is largely carried on in testing gardens located in Florida, South Carolina, Virginia, Maryland, and Wisconsin. Many foreign plants which furnish products now in demand in the American drug markets, but not hitherto grown under American agricultural conditions, and many wild plants, the supply of which is diminishing and which have not been cultivated, have been tested in these gardens to determine if they could be successfully cultivated in this country. After the proper methods of planting, cultivating, and propagating are worked out, the most promising plants are tested on a field scale to determine their commercial possibilities.

Each year thousands of letters are answered in which information is given respecting the cultivation, preparation for market, and probable yield of plants from which drugs, spices, and valuable oils are obtained. The available data on the distribution, collection, and marketing of the many medicinal plants growing wild in this country are also drawn upon in response to requests for information.

THE VALUE OF THE SKUNK TO AGRICULTURE.

The skunk, which is represented throughout the country by a number of varieties, genera, and species, is an animal of great economic importance. Its food consists very largely of insects, mainly of those species which are very destructive to garden and forage crops. Field observations and laboratory examination demonstrate that they destroy immense numbers of white grubs, grasshoppers, crickets, cutworms, hornets, wasps, and other noxious forms. The alarming increase of the white grub in some localities is largely due to the extermination of this valuable animal.

It is a matter of common observation where white grubs are particularly abundant in cornfields to note little round holes burrowed in the ground about hills of corn. These are made by skunks in their search during the night for these grubs. During the recent outbreak of grasshoppers in Kansas it has been determined that in many cases a large proportion of the food of skunks consisted of these grasshoppers.

Some of the most destructive insects in agriculture are such as do their work below ground and out of reach of any method that the farmer can apply, and it is against many of these that the skunk is an inveterate enemy. Notwithstanding all of this, there is probably not an animal that is as ruthlessly slaughtered as is this one, whereas it is equally entitled to protection with, if not more so, than some of our birds which enjoy this privilege.

In some regions, especially in the Southwest, the bite of the skunk is supposed to produce hydrophobia. This fear is unfounded since it is proved that the bite of a healthy skunk is no more serious than similar wounds caused by other agencies.

In connection with the work of the range caterpillar investigations in northeastern New Mexico it has been found that skunks destroy a great many of the pupæ (chrysalis) of this caterpillar, and in fact, during September and October, when this food is easily available, they prefer it to all other. About the middle of September it was discovered that many webs were empty, the pupæ having been neatly extracted from the web and either carried off or eaten. In many areas containing hundreds of acres from 25 to 75 per cent of the pupæ had been carried off, while in a few isolated places as high as 95 per cent of the *Hemileuca* (Mexican range caterpillar) pupæ were gone. Following these observations, piles of skunk excrement were found which consisted in some cases almost entirely of pupæ shells. Subsequent counts made show the excrement found to have from 60 to 95 per cent of its contents consisting of these crushed shells. On the Crow Creek Ranch there was not an area observed but what had some of the *Hemileuca* pupæ destroyed by these animals. It is thus seen that the common skunk is at the present time one of the most important factors looking toward the control of *Hemileuca* outbreaks and should be protected by the ranchers in the infested district.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1913

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

Vol. I WASHINGTON, D. C., JANUARY 7, 1914 No. 22

HOW CROPS SUITED TO PARTICULAR LOCALITIES ARE INVESTIGATED FOR THE FARMER'S BENEFIT.

[An explanation of certain offices of the Bureau of Plant Industry.]

(*Continued from last issue.*)

OFFICE OF WESTERN IRRIGATION AGRICULTURE.

This office is helping the farmers of the West to learn what crops to grow and how best to grow them, particularly on lands that have been put under irrigation by the Federal Government. On these newly irrigated lands the farmers have to meet new and unusual conditions. They need new crops and new methods.

The field work of the office is conducted from seven field stations. On these stations new crops and new methods are tried where the farmers can see the work and the results. The field men further help the farmers by getting them to organize and to work together in clubs and associations. When a new crop has been found suited to local conditions these field men take the leadership in starting the new industry.

On these field stations improved varieties of crops are grown and the seed distributed locally, thus bringing the work of the plant introducer and the plant breeder direct to the farmer. In meeting special local problems the office secures the services of experts in carrying out experiments and demonstrations. Many of these are conducted by the farmers themselves under expert supervision.

Many of the new irrigated regions are better suited to the production of live stock than to the production of plant products for sale. They are located in the midst of the great western ranges. Consequently, much attention has been given to the trial of new forage and grain crops and to the methods of farming that would give the highest production of such crops.

It has been shown that good cultivation lessens the need for irrigation and prevents the injurious effect of too much water. Special methods are being worked out for the reclamation of alkali land. At San Antonio, Tex., where the climate is too dry for the production of corn and the sorghum midge destroyed grain sorghums, it has been shown that short-season varieties of kafir and milo planted early will make a crop every year.

The production of Egyptian cotton and of Durango, a new long-staple Upland variety, has been developed to a commercial scale on two irrigated projects in the Southwest, in cooperation with other offices of the bureau. On three of the northern projects experiments are now under way to work out the fundamental question of the best methods of maintaining the productiveness of irrigated land.

OFFICE OF DRY-LAND AGRICULTURE INVESTIGATIONS.

That good may accrue to the farmer from the negative as well as the positive results of scientific investigations is made clear by the work of the office that concerns itself with dry-land agriculture in the Great Plains area. The fact that it is a losing proposition to grow small grain in certain sections of the country has been positively determined by this office's experiments. This has prevented the unwarranted booming of land values in places where exploitation is unjustifiable.

This branch of the Department of Agriculture endeavors to keep for the use of the public, continuous and definite data regarding the ability of certain areas in the Great Plains to produce crops. It carries on its work at 20 stations west of the ninety-eighth meridian and east of the Rocky Mountains. It accumulates facts about the climate and the soil. These facts it stands ready to furnish to anyone proposing to invest in the land. It also studies the effects of different methods of seed-bed preparation, cultivation and crop sequence for the important crops of these localities.

The farmers of the districts where the field stations of this office are situated may apply to the stations for such data as is known about their locality. They can find out what crops have been grown there at a profit as well as which have been grown at a loss. They can find out what methods of cultivation have been most efficient and can plan their work accordingly.

The total annual rainfall of a section is not a safe criterion by which to judge its agricultural value, according to the experiments of the office of dry-land agriculture. The distribution of rainfall, the type of soil, and the loss from evaporation and run-off are all important factors.

OFFICE OF CROP ACCLIMATIZATION AND COTTON-BREEDING INVESTIGATIONS.

The interests of the southern farmer are more especially considered by this office. It carries on investigations in acclimatizing new crops from tropical countries and in breeding cotton.

On account of the crisis in the cotton industry resulting from the boll-weevil invasion, the office has been endeavoring to discover new types of cotton and new methods of culture that may benefit the grower. Weevil-infested regions have been investigated in Mexico and in Central America, and afterward in the United States, in order to discover types of cotton that withstand the invasions of the boll weevil in its native home.

Several new varieties of cotton bred by the department are now being grown extensively in different parts of the country. Among these are:

Lone Star cotton (in Texas).
Trice cotton (in Tennessee and adjacent States).
Columbia cotton (in the Carolinas).
Durango cotton (in California and Texas).

As a result of many experiments, the office states that the regular planting of uniform carefully selected

varieties means an addition of 10 per cent to the crop in increased yields and at least the same amount of profit through improvement of quality.

An annual advantage of over $100,000,000 is placed within the reach of our cotton growers, according to the scientists of the department, through the development of improved varieties of cotton and improved methods of selection, cultivation, and handling of the crop.

This office has issued a number of circulars, which it furnishes on demand to any cotton grower, outlining simpler and more effective methods of selection and a new system of cotton culture that have been developed.

Experiments have shown that cotton-growing communities have much to gain by cooperative organization for the production and marketing of a single superior variety of cotton. The quality of the crop can be improved, weevil injury can be diminished, and the crop can be sold at higher prices by being handled on a community basis. Hence the office encourages the formation of community organizations of cotton growers.

OFFICE OF CROP PHYSIOLOGY AND BREEDING INVESTIGATIONS.

Another office that investigates the breeding of new crop plants, but which confines itself more particularly to plants of the Southwest and Florida, is the office of crop physiology and breeding investigations. Dates, Smyrna figs, hardy citrus fruits, and pistache nuts are among the crops in which this office is interested.

As its name indicates, this branch of the Bureau of Plant Industry also studies the physiology of crop plants. It endeavors to discover just what soil, climate, and culture are needed to grow these crops successfully and how these plants may best be utilized by the plant breeder.

The office is endeavoring to assist the establishment of date culture on a commercial scale in the United States. Date gardens have been established at Tempe, Ariz., and at Mecca and Indio, Cal. Cooperative date-raising experiments on a smaller scale are also under way at Laredo, Tex., and El Centro, Cal.

Three testing gardens are maintained in Florida for the testing and propagation of citrus fruits in order to breed new and particularly hardy types.

Investigations are under way with a view to securing deep-rooted trees suited to dry regions where irrigation can not be practiced.

The American Indians on reservations of the Southwest profit from the services of this branch of the Department of Agriculture, for in cooperation with the Indian service this office conducts a testing and demonstration garden at Sacaton, Ariz., which tries to find what crops are best suited for culture by the Indians themselves. The Indian laborer is also trained to handle cotton and other crops likely to be grown by white settlers in adjoining regions.

This office in cooperation with four others has charge of the establishment of long-fiber cotton culture in the Southwest. In the Salt River Valley the culture of improved varieties of Egyptian cotton has already become an important agricultural industry. Indian labor educated at the Sacaton Station has proved to be invaluable in picking cotton.

COMMITTEE TO INVESTIGATE MEAT SITUATION.

Secretary Houston Appoints Agricultural College and Department Specialists to Investigate Factors Contributing to Present Unsatisfactory Production Conditions.

The Secretary of Agriculture on Saturday, December 27, announced the appointment of the following committee "to conduct a general inquiry into the various factors which have brought about the present unsatisfactory conditions with respect to meat production in the United States, especially in reference to beef, with a view to suggesting possible methods for improvement":

Dr. B. T. Galloway, Assistant Secretary of Agriculture, chairman.

Dr. H. J. Waters, president Kansas State Agricultural College.

Prof. C. F. Curtiss, dean and director Iowa State College.

Prof. H. W. Mumford, professor of animal husbandry University of Illinois.

Dr. A. D. Melvin, chief Bureau of Animal Industry.

Dr. T. N. Carver, director Rural Organization Service.

The work of the committee will be centered largely on the study of economic questions involved in the production, transportation, slaughter, and marketing of meat. As the first step, the committee will investigate carefully the changes within the last two or three decades which have increased cost of production, and the centralizing of the meat industry. Among the important considerations to be gone into will be the taking up of the public lands, the effect of the capacity of the range, especially on the remaining public lands and forest reserves with a view to suggesting changes in the laws to make the public lands of greater use in cattle raising. The committee also will give special attention to the economic changes in meat production and distribution brought about through the centralizing of slaughtering and meat preparations in large packing establishments and the changes in transportation and similar matters which have resulted from this centralization and other causes, the economic possibility of communal and community effort in cattle raising, and the advantages of establishing local or municipal abattoirs will also be investigated.

The committee will not deal specifically with questions of animal husbandry which has to do with the actual breeding of cattle, as this work will be left to the specialists in the department and State agricultural colleges in this field. The appointment of a committee will not interfere in any way with investigations now under way in any of the State agricultural colleges or experiment stations. The letter of appointment announces that the chairman within a short time will supply details regarding the scope of the investigation and the lines of work which the committee might take up.

AMERICANS SHOULD DEVELOP IMPROVED VARIETIES OF POTATOES.

American progress in the development of improved varieties of potatoes has not been satisfactory as compared with the progress of leading European countries is the statement of the Bureau of Plant Industry of the Department of Agriculture in Department Bulletin No. 47, "Lessons For American Potato Growers From German Experiences."

The best European varieties possess a better flavor, color, and texture, particularly for boiling and frying, but these do not succeed when introduced into the United States. If private growers would engage in this work as they have in Great Britain, Germany, and Austria, they would find it a fascinating industry and would undoubtedly make notable achievements.

In America we have much to accomplish in breeding a potato with a greater starch content. Our potatoes are now lower than the German varieties by from 4 to 8 per cent.

Our climatic conditions in America are so diverse that we need varieties of potatoes adapted to special localities. Particularly do we need a heat-resistant strain that can more successfully withstand the high summer temperatures. Disease resistance is another quality that has been bred into certain foreign sorts but is so lacking in ours that we have to quarantine absolutely, certain foreign types that might bring disease with them.

The breeding of potatoes for different kinds of cooking might even be found profitable. A variety specially suited for baking is needed; another for frying; a close-textured tuber is in some demand for salads. The housewife to-day finds it necessary to waste much good material in preparing her potatoes for the table, particularly the irregular, deep-eyed sorts.

The use of commercial fertilizers, universal in Germany, is unknown in our western potato districts. Certain of our districts in Maine, New York, and the Atlantic trucking belt have already found it to their profit to use more fertilizer, and potato growing is most prosperous in these sections. This should become more universal.

Crop rotation is of fundamental importance to the potato crop in controlling diseases and maintaining production, but in the United States only the beginning of an ordered system has been made. Germany has a rotation of from 3 to 7 years between potato crops. Nor has the importance of green manuring yet been fully appreciated in this country.

The problem of securing disease-free seed has been met in Germany by an official inspection, which results in certificates being issued only to owners of disease-free crops. Such a plan for the United States would be better if carried out by the cooperation of potato-growers associations, the State experiment stations, and the United States Department of Agriculture, rather than through legal enactment.

WHAT CONSTITUTES BENEFICIAL USE OF WATER IN IRRIGATION.

Under the laws of water rights, as established by legislation and court decrees in the arid States of the West, the final test of a right to water for irrigation is that the water claimed shall be put to a beneficial use. As expressed by the laws of several States, "beneficial use is the basis, the measure, and the limit" of rights to water. These laws, however, do not attempt to define "beneficial use."

At a conference of the project managers of the United States Reclamation Service and representatives of the Department of Agriculture, held at Salt Lake City, November 12–15, a resolution attempting such a definition was adopted. This definition is somewhat long and detailed, but in substance is as follows:

A water user is entitled to that "amount of water that will render him a reasonable maximum amount of good with a reasonable, economic handling of the water." He is entitled to the protection of the State in this right, but in return the State has a right to demand that he use reasonable care and judgment in conveying and using water and cultivating his crops.

The conference adopted also a definition of "economical use," which was in substance as follows:

Since the water supply available for irrigation in the Western States is adequate for only a relatively small percentage of the entire irrigable acreage, the fundamental standard of economical use must be the financial results accomplished per acre-foot of water applied, rather than the yield per acre irrigated. In future development the doctrine of beneficial use must in many cases merge into or be supplanted by that of economic use. The doctrine of beneficial use looks to individual interest; that of economic use to the general welfare of society as a whole. So far as possible, water charges, systems of distribution, and regulations should be so adjusted as to make the interest of the individual water user coincide with this public interest.

FARMERS' LAMB CLUBS IN TENNESSEE.

A SUCCESSFUL COOPERATIVE PLAN FOR MARKETING.

In view of the wide discussion of the effects of cooperation among farmers in marketing their products, the work of the Goodlettsville, Tenn., Lamb Club, organized in 1882–83 and now in existence for 30 years, is of timely interest. The club was organized because the sheep raisers in the vicinity of Goodlettsville found that by banding together they could make larger offerings of more uniform lambs, utilize car

space to better advantage, and by making available a larger number of good lambs ready for shipment on a single day secure greater competition among the buyers. The following facts are the result of a study of this club and other lamb clubs in Tennessee recently made by the Bureau of Animal Industry:

The Goodlettsville Lamb Club originally consisted of about one dozen farmers, and its membership has increased until at one time its membership numbered 85. It has as officers a president and a secretary, and an executive committee of three members, of which the secretary is a member ex officio. The club is not a chartered institution, and is more in the nature of a partnership. Its members agree to abide by its rules and constitution, although the organization is not especially binding. The president calls a meeting about April 1. Prior to this meeting its members have the privilege of selling lambs and wool at private sale. At the meeting, however, each member reports the number of lambs and the amount of wool he will have to sell through the club, and thereafter can no longer sell individually. After the report the executive committee has unlimited power.

This committee then determines the total number of lambs and date or dates for shipment. Ordinarily one shipment is made in the early part of June and another is scheduled for the early part of July. This year's sales were dated June 10 and July 15. The first delivery is made up almost entirely of "firsts." The second delivery which contains those that are too small for the first sale is, as a rule, a poorer quality, as the old lambs do not make as great or satisfactory gains as the early ones.

There is little uniformity as to methods of sale. This year, as is often the rule, the wool was sold to a local woolen mill. It was graded clean, slightly burred, and burred, and sold for 23¼, 20½, and 17 cents per pound, respectively. These prices average better than those paid by local buyers, but because the other wool sold to these buyers is ungraded, it is difficult to compute the exact monetary advantage to the club members.

The sale of lambs through the club may be announced through the local papers, by means of posters, or post cards, or by word of mouth. This announcement varies with the locality and the club may change its methods from year to year.

Following is a duplicate advertisement of such a sale:

LAMBS FOR SALE.

The ——— Lamb Club will sell by sealed bids about 800 lambs. Bids close May 20. Lambs are to be fat, merchantable lambs, weighing from 55 pounds up, and will be delivered from the 9th to the 12th of June. Club reserves the right to reject any or all bids.

(Signed) ——— ———, *Secretary.*

Some of the clubs will accept bids by telephone or mail. The time between closing bids and the actual sale of lambs varies. Where bids closing on the day of sale are not satisfactory, the club then ships its own lambs in cars previously ordered, and which the buyers have agreed to use if their bids are accepted. In some cases bids are accepted several weeks before delivery date, and the Goodlettsville club sold on futures this last season. Selling at or near the day of delivery is generally more popular with buyers and purchasers.

On the day of delivery at Goodlettsville the lambs begin to come in early in the morning in wagons or in flocks. The driven lambs are marked with bright colored paint which avoids confusion where flocks become mixed. Lambs are put upon the scales which are handled by the executive committee. Lambs lacking in condition or weighing less than 60 pounds are discarded as culls. Comparatively few are thrown out, however, as the growers cull their lambs at the farm. Of the culls, the greater part are those lacking in age and of small size, but there are also some large ram lambs that have become what is locally known as staggy.

The president and one or two assistants weigh the lambs and credit each grower with his total weight. Delivery is commonly made before noon in time for loading. Payment is made on the day of delivery. The president of the executive committee pays the expenses, which are small, and apportions the balance among the members according to the number and weight actually delivered.

The business of the day is followed by a dinner of the club which adds a social feature. In addition to the Goodlettsville Club there are lamb and wool clubs at Mount Juliet, Bairds Mill, Allisona, Martha, and Flat Rock, in flourishing condition. These clubs each handle from 600 to 2,500 lambs per year. New clubs are occasionally formed and these are generally successful.

DIRECTORY OF THE DEPARTMENT OF AGRICULTURE.

Secretary of Agriculture, David F. Houston.
Is the executive and administrative head of the department and represents it in the President's Cabinet.

Assistant Secretary of Agriculture, Beverly T. Galloway.
Assists in directing the work of the department. In the absence of the Secretary he becomes Acting Secretary.

Weather Bureau, Chas. F. Marvin, Chief.
Conducts meteorological investigations; issues weather maps; handles all work relating to climate, storm warnings, frost warnings, etc.

Forest Service, Henry S. Graves, Forester.
Administers the national forests and develops use of their resources.

Bureau of Animal Industry, A. D. Melvin, Chief.
Studies and gives information regarding live stock; conducts the meat inspection and quarantine work.

Bureau of Plant Industry, Wm. A. Taylor, Chief.
Investigates problems relating to plants and plant industries.

Bureau of Chemistry, Carl L. Alsberg, Chief.
Enforces the pure-food law; investigates questions of agricultural chemistry.

Bureau of Soils, Milton Whitney, Chief.
Surveys and maps the soils, and investigates the fertilizer resources of the United States.

Bureau of Entomology, L. O. Howard, Chief.
Studies insects in their relations to agriculture.

Bureau of Biological Survey, Henry W. Henshaw, Chief.
Studies wild birds and animals in their relation to agriculture; administers the Federal laws protecting game and regulating the importation of birds and animals.

Bureau of Statistics (Bureau of Agricultural Forecasts), Leon M. Estabrook, Chief.
Collects crop statistics; gathers and collates general agricultural statistics; issues crop reports and forecasts.

Office of Public Roads, Logan Waller Page, Director.
Studies and supplies information regarding road making, management, and maintenance.

Office of Experiment Stations, A. C. True, Director.
Supervises the use of Federal funds for agricultural experiment stations; investigates agricultural education, irrigation, drainage, and human nutrition.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1913

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., JANUARY 14, 1914 No. 23

SOUTHERN CATTLE AT THE INTERNATIONAL LIVE-STOCK EXPOSITION.

A significant feature of the 1913 International Live Stock Exposition at Chicago was the fact that, for the first time, two herds of cattle from below the old Texas fever quarantine line were exhibited in competition with cattle from all over the United States and Canada. The competition was very keen, as all kinds of animals were exhibited. This exposition was one of the most successful held since its inception in 1910.

The Shorthorn herd of the Lespedeza farm, of Hickory Valley, Tenn., won a number of prizes at this exposition. This farm, three years ago, was said to be the worst tick-infested farm in the State, but is now free of ticks and has been released from quarantine.

The farm was released from quarantine only a year ago. The herd of Herefords from this farm at the International won the grand championship for Hereford bulls with Point Comfort 14th. This bull was bred and raised in Arkansas below the quarantine line. He won strictly on his merits as a southern bull, bred, raised, and fitted on southern feeds and pastures. A yearling bull by Point Comfort 14th at the Hereford Association's sale on Friday afternoon, December 5, sold for $575, and a bull calf by the same sire at the same sale for $440. These facts show the possibilities of the South as a breeding ground for fine cattle.

REGULATIONS FOR ADMITTING FOREIGN POTATOES TO THE UNITED STATES.

To permit the admission of disease-free potatoes from foreign countries and districts which are not infected by the powdery scab, wart, and other serious diseases the Secretary of Agriculture has issued a series of regulations defining the conditions under which potatoes will be permitted to enter this country in accordance with the order issued December 22, 1913. This order extended to potatoes the nursery stock regulations of the plant quarantine act, and provided that no potatoes could be imported until the importers had secured permits from the Federal Horticultural Board, similar to those now issued to importers of nursery stock.

Potatoes to be admitted must be certified by the Government of the country of origin to be free from dangerous diseases and insect pests covered by the quarantine, and must have been grown in a district free from the wart disease and the powdery scab. The new regulations define the exact conditions under which such disease-free potatoes will be admitted.

The regulations, in general, besides prescribing the exact forms of notifying the Government of shipments, provide for the admission, under the inspection system, of potatoes from all countries not under quarantine. Such countries must, however, maintain effective quarantines of their own against infected countries; i. e., countries remaining under quarantine by the United States.

The regulations also provide for the lifting of the quarantine as to any countries covered by the quarantine upon the presentation of satisfactory evidence to the Secretary of Agriculture that such country, or well-defined district thereof, is free from injurious potato diseases and insect pests, and, after the quarantine has been thus lifted, potatoes will be admitted from such country or district in accordance with the regulations governing entry of potatoes from countries not now under quarantine. The countries now thus quarantined are Newfoundland, the islands of St. Pierre and Miquelon, Great Britain, including England, Scotland, and Wales, Ireland, Continental Europe, and the Dominion of Canada. It is expected that from some of these, at least, it will be possible in the near future to lift the quarantine and permit the entry of potatoes therefrom under the conditions prescribed in the regulations.

CONGRESS ASKED TO PROHIBIT MOVEMENT OF TICKY CATTLE BEYOND THE QUARANTINED AREA.

The Secretary of Agriculture has recommended that Congress repeal the provision in the law of 1884 establishing the Bureau of Animal Industry which permits the shipment of cattle from the Texas fever region by rail to market for slaughter. This law was passed before the nature of the infection and its transmission by ticks were understood. The effect of the change would be to place Texas fever on the same basis as other communicable diseases and to prohibit the interstate movement of tick-infested cattle. Since the eradication of the ticks has been shown to be entirely practicable, there is no longer any good reason for allowing the shipment of ticky cattle outside of the quarantined area, especially since this is now attended with danger of reinfecting some of the territory that has been freed of ticks.

The Secretary's recommendation to Congress was unanimously indorsed by the Southern Cattlemen's Association at its recent convention in Memphis, and also received the approval of the United States Live

23648°—14

Stock Sanitary Association at its recent Chicago meeting.

Under the proposed change in the law cattle could be shipped interstate from the quarantined area only after they had been dipped or otherwise freed of ticks, but when so shipped they would be free from quarantine restrictions on account of Texas fever and would not have to be sold for immediate slaughter.

It is believed that this change would be of great advantage in promoting the eradication of the ticks in the South and also in protecting the territory already freed.

SUGGESTIONS FOR VOLUNTARY CROP CORRESPONDENTS.

The practice in the Government crop-reporting service of using a single schedule of inquiry for the entire United States, excepting California and Florida, which experience has proven to be most satisfactory involves, to many correspondents, two principal difficulties.

The first is that the schedule usually indicates many crops not grown in the neighborhood for which any particular correspondent reports, or grown to so small an extent as not to be worthy of reporting. This difficulty is met by making a cross in the space below the question, indicating that the crop is not regularly grown, either for home use or for market.

The second and greater difficulty arises from the fact that questions are asked at seasons appropriate to the growth and maturity of the crop in the main regions of its production. For instance, corn is planted as late as June and does not mature until October in the principal northern corn belt, hence it is impossible to determine the acreage for the entire country before July 1 or the yield before November 1. In some portions of the Southern States, on the other hand, the early crop of corn is planted in March and has fully matured by July. While the early planting does not hinder the reporter in those sections from making an accurate estimate of acreage, the question of yield, coming several months after the crop has matured and when the yields have to some extent been forgotten, tends to interfere with the accuracy of his estimates.

Inasmuch as the voluntary correspondents are, as a rule, leaders in their communities, and as such would be interested in the maintenance of permanent and accurate records relating to their own neighborhoods of the matters upon which the bureau makes inquiry and estimates for the State at large, it is suggested that they make a record of such subjects in some permanent form, both to assist in preparing accurate reports to the bureau and for the information of themselves and neighbors in later years.

While the details of local crop conditions, acreages, yields, etc., remain in the minds of farmers for a few seasons, only very exceptional men are able to remember them for a long term of years. Such local records, if faithfully kept, may in later years be of great benefit.

The Bureau of Statistics (Agricultural Forecasts) has in preparation and will forward early in 1914 to each of its correspondents a blank form, to be retained by him, upon which he may copy his reports to the bureau from month to month. The correspondent whose crops mature at a period earlier than the time for reporting to the bureau may note the facts of yields etc., on this form in advance of his report.

WARNING AGAINST UNCOOKED AND RAW PORK.

While American people as a rule prefer cooked pork which is wholesome there are many who unknowingly or deliberately consume pork in an uncooked condition, either in the form of raw ham or smoked sausages. In many districts, particularly in sections with large foreign populations, a great deal of pork is made privately or commercially into such products for home use or for sale.

Great risk always attends the use of raw or undercooked pork. The illness which may result from eating raw pork, known as trichinosis, is caused by a parasite or a worm, microscopic in size, which occurs in the flesh of hogs. There is no known effective method of treating the disease. The patient dies or recovers apparently irrespective of the nature of the treatment. Many who do not die have their health impaired.

Statistics based on microscopic inspection of over 8,000,000 hogs during a period of nine years in this country have shown that 1.41 per cent of the hogs were infested with live trichinæ. This fact alone makes it important that everyone who eats pork should for the protection of health eat it only when thoroughly cooked.

HOW TO EAT PORK SAFELY.

The trichina parasites die and become harmless when exposed to a temperature of 140° F. for a short time. In the case of uncured pork the thoroughness of the cooking can be judged by whether the meat clear to the center of the piece has lost its reddish bloody appearance and has become more or less white in color. In order to obtain a temperature of 140° at the center it is necessary that the temperature to which the piece of meat is exposed during cooking should be considerably higher than 140°.

HOW LONG TO COOK PORK.

The following rule for cooking pork by boiling is based on careful experiments carried out by a Danish investigator:

Cook the meat 15 minutes (summer) to 18 minutes (winter) for each pound of weight if put into boiling water, keeping the water boiling throughout the cooking process. If the meat is put into cold water, deduct half the time required to bring the water to a boil.

Examples: How long should a 10-pound ham be boiled if placed in boiling water?

10×18 equals 180 minutes, or 3 hours.

How long should a 10-pound ham be boiled if placed in cold water and if 1 hour is required to bring the water to a boil?

$10 \times 18 - 30$ equals 150 minutes, or $2\frac{1}{2}$ hours, after boiling begins.

The 18 minute per pound allowance should be followed in summer if the meat is taken from a refrigerator and cooking begun before it has had

time to reach the ordinary house temperature. For high altitudes, where the temperature of boiling water is considerably less than at sea level, the time of cooking must be lengthened.

BIG WASTE OF FERTILIZING MATERIAL.

Seventy-five per cent of a highly valuable fertilizing material in the form of tankage and blood from the country slaughter of food animals is being wasted throughout the country districts.

Tankage, a product of slaughterhouses, consisting of such waste material as bones, horns, hoofs, hair, etc., contains a large percentage of nitrogen and other products used in commercial fertilizer, and in the larger packing houses is carefully saved. In country killing, however, only 25 per cent of the tankage and blood are saved for fertilizer. The nitrogen content of tankage is said to vary from 5 to 8 per cent and its phosphoric acid content between 5 and 12 per cent.

Dried blood is perhaps the richest in nitrogen of all the organic materials used in the fertilizing industries. Unadulterated blood when quite dry contains 14 per cent of nitrogen, but as obtained on the market its content varies from 9 to 13 per cent.

From the figures estimated by the Bureau of Animal Industry, Department of Agriculture, as representing the total slaughter of cattle, calves, swine, and sheep in the United States in 1912, it has been calculated that if all the materials rendered available by this slaughter had been saved and converted into tankage and dried blood, they would have produced 222,535 tons of tankage and 79,794 tons of dried blood.

The introduction of a cooperative system among American farmers should result in an increased utilization of blood and tankage for fertilizing purposes. In Denmark, country killing is being practiced on a cooperative basis in small country abattoirs, and the blood is carefully preserved.

VALUABLE FOOD BEING WASTED.

GOOD SUET THROWN AWAY OR USED FOR SOAP WHICH COULD BE RENDERED AND USED IN COOKING.

Reports from some of the food specialists of the Department of Agriculture indicate that in certain sections there is a serious waste of a valuable food, due to the fact that many housewives do not appreciate the value of suet in cooking and do not know how to use it. As a result many throw good food suet into the garbage pail, or else in rare cases use it with meat trimmings for soap making. Many are unaware that suet possesses the same food value as lard, and if properly tried out is a satisfactory substitute for frying purposes, for shortening, and in making savory fats. Apparently some of the cookbooks have misled the American housewife by stating that suet is good only for soap making. In Europe, however, this food is carefully kept and rendered, and in Germany suet and lard are used interchangeably for frying and shortening.

Suet is the hard fat about the kidneys and loins in beef and mutton which corresponds to the fat of hogs from which leaf lard is made. Those who do not know how to render it object to the hardness of suet and to its special flavor. Fresh suet, however, can be so rendered as to make a soft, usable fat, practically free from any distinctive flavor or odor.

The following is the simplest method for "trying out" suet:

"Remove the skin and lean parts from beef fats and cut it into small pieces. Put it into a saucepan and cover it with cold water. Place it on the stove uncovered, so that the steam may carry off any disagreeable flavor. When the water has nearly all evaporated set the kettle back and let the fat slowly 'try out.' When the fat has ceased bubbling and the scraps of skin are shriveled allow the scraps to settle at the bottom of the kettle, strain the fat through a cloth, and set it away to cool."

This fat is so valuable in cooking that housewives will do well to save all suet from their meat and try it out.

For those who want a mixture of suet and leaf lard the following recipe will be found useful:

"Take two parts of suet and one of leaf lard, finely ground, and mix together. Render this with whole milk in the proportion of one-half pint milk to 2 pounds of the mixed suet and lard. (Render means to melt down or to clarify by melting.) The suet and lard mixture may be finely divided by passing it through a meat grinder and may then be heated in a double boiler, when the fat will be quickly released from the tissues, and when allowed to cool will form a cake on the surface of the liquid which may be easily removed."

This fat has a good odor, color, and texture, and is softer than the suet alone. It is useful for frying and the shortening of foods with high flavors, and may be used with fair results in shortening such things as baking-powder biscuits. It is useful for cooking vegetables either alone or with the addition of a little butter.

DO NOT LET FAT BURN IN COOKING.

The unpopularity of fried food in many families is due entirely to the fact that the fat has been burned in cooking. Fat when heated to too high a temperature splits up and may form substances which have an irritating effect on the throat and may cause digestive disturbances. Fat in itself is a very valuable food and if it is not scorched should prove a healthful rather than an objectionable article of diet. A slightly burned taste and similar objectionable flavors can often be removed from fat by putting into it thick slices of raw potato and heating it gradually. When the fat ceases to bubble and the potatoes are brown, the fat should be strained off through a cloth placed in a wire strainer.

EXPLANATION OF THE WEATHER MAP.

An objection occasionally made to the weather maps issued by the Weather Bureau is that they are not understood by a large percentage of their recipients. This want of understanding is perhaps confined to those who have concluded from a hasty examination that they are too complex for ready comprehension, and it is the present purpose to explain as simply as possible just what the weather maps show, and what information of value the layman can derive from them.

The daily weather map shows the weather condition throughout the United States at 8 a. m., seventy-fifth meridian time. The places where observations are taken are indicated by small circles. The shading or symbols inside the circles indicate the state of the weather—clear, partly cloudy, cloudy, rain, snow, etc.—as indicated in the explanatory notes. The arrows passing through the circles indicate the direction in which the wind is blowing.

It will be noticed that the map is traversed by a number of lines, some continuous and some dotted or broken. The continuous lines are "isobars," lines that pass through places having the same atmospheric pressure. The velocity of the wind usually increases as the distance between the isobars decreases. The dotted or broken lines are "isotherms," or lines that pass through places having the same temperature. The values of the lines are indicated by accompanying figures, the pressure being shown in inches and tenths and the temperature in degrees.

The words "High" and "Low" indicate the regions of high and low atmospheric pressure, the latter being the centers of atmospheric disturbance. Over the United States the general movement of the "Highs" and "Lows" is eastward, the rate of movement varying from a few miles to as much as 75 miles an hour, the average being about 25 miles. Lows bring higher temperatures, easterly to southerly winds, and increasing cloudiness with precipitation, the character of which depends upon the season of the year. When a low passes a given place, the winds shift to the west and northwest, and a high follows, with falling temperature and usually with clearing weather. The high is in turn followed by another low, and so on. As the movements of the highs and lows are not always due easterly, conditions that follow may vary materially from the general rule.

Sometimes the map contains shaded areas. These show where precipitation in measurable quantity occurred during the preceding 24 hours. Additional features of the map not mentioned here are explained in the notes. The data on the face of the map are supplemented by other weather information in text or tables.

Although by a study of the weather map, and guided by the knowledge that highs and lows move successively across the country, the average person can obtain some idea of probable changes in the weather, it must be remembered that the movements are not always the same, and consequently the resulting conditions can not well be foreseen except by the trained forecaster. For general purposes, however, a careful student of the weather map can form a fair idea on a broad scale of coming weather changes.

IMPORTS OF CATTLE, MEATS, AND MEAT FOOD PRODUCTS DURING OCTOBER AND NOVEMBER, 1913.

Imported cattle inspected by the Bureau of Animal Industry, United States Department of Agriculture, during October and November, 1913, numbered 209,327 head as compared with 72,420 for the corresponding period of 1912. All came from Canada and Mexico except 447 head of pure-bred cattle, for breeding purposes, imported from Great Britain. The imports were classified as follows: October—for immediate slaughter, 73,166; as stockers and feeders, 54,565; for dairy and breeding purposes, 739; total, 128,470. November—for immediate slaughter, 39,086; as stockers and feeders, 41,548; for dairy and breeding purposes, 223; total, 80,857. The bulk of the slaughter cattle came from Canada, while Mexico furnished over four-fifths of the stockers and feeders.

Imported meats and meat food products inspected during October amounted to 6,000,735 pounds and in November to 11,792,576 pounds, making a total of 17,793,311 pounds for the two months. The bulk of this consisted of fresh and refrigerated beef, 16,082,578 pounds. There were 275,847 pounds of other fresh and refrigerated meats. The remainder consisted of cured and canned meats, 1,169,517 pounds, and other products (sausage, compound, and oleo stearin), 265,369 pounds. Of the total, Canada furnished 8,098,197 pounds; Argentina, 6,209,700 pounds; Australia, 2,725,142 pounds; Uruguay, 559,843 pounds; and other countries much smaller quantities. Of these imports there were condemned in October 4,690 pounds and in November 14,123 pounds, or a total of 18,813 pounds.

DIRECTORY OF THE DEPARTMENT OF AGRICULTURE.

Secretary of Agriculture, David F. Houston.
Is the executive and administrative head of the department and represents it in the President's Cabinet.

Assistant Secretary of Agriculture, Beverly T. Galloway.
Assists in directing the work of the department. In the absence of the Secretary he becomes Acting Secretary.

Weather Bureau, Chas. F. Marvin, Chief.
Conducts meteorological investigations; issues weather maps; handles all work relating to climate, storm warnings, frost warnings, etc.

Forest Service, Henry S. Graves, Forester.
Administers the national forests and develops use of their resources.

Bureau of Animal Industry, A. D. Melvin, Chief.
Studies and gives information regarding live stock; conducts the meat inspection and quarantine work.

Bureau of Plant Industry, Wm. A. Taylor, Chief.
Investigates problems relating to plants and plant industries.

Bureau of Chemistry, Carl L. Alsberg, Chief.
Enforces the pure-food law; investigates questions of agricultural chemistry.

Bureau of Soils, Milton Whitney, Chief.
Surveys and maps the soils, and investigates the fertilizer resources of the United States.

Bureau of Entomology, L. O. Howard, Chief.
Studies insects in their relations to agriculture.

Bureau of Biological Survey, Henry W. Henshaw, Chief.
Studies wild birds and animals in their relation to agriculture; administers the Federal laws protecting game and regulating the importation of birds and animals.

Bureau of Statistics (Bureau of Agricultural Forecasts), Leon M. Estabrook, Chief.
Collects crop statistics; gathers and collates general agricultural statistics; issues crop reports and forecasts.

Office of Public Roads, Logan Waller Page, Director.
Studies and supplies information regarding road making, management, and maintenance.

Office of Experiment Stations, A. C. True, Director.
Supervises the use of Federal funds for agricultural experiment stations; investigates agricultural education, irrigation, drainage, and human nutrition.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1913

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., JANUARY 21, 1914 No. 24

PROBLEMS IN MARKETING.

QUESTIONS THAT MUST BE SOLVED TO AVOID WASTE OF MONEY AND LOSS IN GETTING FOOD FROM THE PRODUCER TO THE CONSUMER—STUDIES UNDER WAY IN THE OFFICE OF MARKETS.

The many difficult and complex problems that must be solved before present waste and loss in getting food from the producer to the consumer can be avoided were discussed in detail recently by representatives of the Department of Agriculture.

David F. Houston, Secretary of Agriculture, opened the discussion by pointing out that it is difficult to decide whether the problems of production or of distribution are the more difficult, although in his opinion those of distribution are at the present time the most urgent. In many communities, further production, he stated, is discouraged by reason of the fact that the products can not easily be marketed or because they are marketed at a loss. Farmers send commodities by consignment to certain central markets and instead of securing a profit on the shipment find they are compelled to send checks to cover the expense. In many cases, Secretary Houston stated, products are sent out rather blindly to great distributing centers and then not infrequently are sent back over the same route to markets which need them. One of the great problems, he stated, was to assist groups of producers to find the best near-by local markets. This among other things would greatly relieve transportation agencies which undoubtedly are now unnecessarily taxed by haphazard and chaotic methods of marketing.

Continuing, Secretary Houston said:

There is so much interest—so much excitement—that it will be very easy to do things hastily and to go in a wrong direction. Wrong steps will be fatal. They will create lack of confidence and hamper us in attempting to solve our problems.

Unquestionably, we are confronted with great difficulties, but we must overcome them. The farmers must be induced in particular communities to develop staple products, to standardize them, to prepare them properly for market, to study what market to reach at a given time, and the best and most economical method of shipping the product. Nothing less than concerted action will suffice. The individual farmer can not solve the problem. He can not sufficiently control the problem of production or of machinery for marketing or the transportation facilities.

Of course, I am not speaking of concerted action which shall have for its object the establishment of a closed market or the fixing of prices. I imagine we shall not accept such a principle in agriculture any more than we would in manufacturing. It is as unnecessary as it would be undesirable. I am simply suggesting the introduction of business principles into farming for pure economic efficiency. The results of this will be beneficial to the producer as well as to the consumer.

We shall act as speedily as possible. We shall zealously undertake to discover all the essential facts. At the earliest possible moment we shall disseminate what information we have, and when the proper time comes shall undertake to make an educational demonstration. In this work, as in other directions, we hope to cooperate with every useful public agency. We are now preparing to undertake cooperation in an experimental way with the Post Office Department. We shall work in as close harmony with the State colleges as possible and shall avail ourselves of all assistance from college departments of marketing and from State marketing bureaus.

SHIPPING IN CARLOAD LOTS.

Charles J. Brand, Chief of the Office of Markets, then took up the discussion. Under the heading of "Cooperative production and marketing" he said:

There seems to be no question that efficiency in marketing and distribution can be secured only by some method of getting producers together so that they can handle their products in other than fractional lots. They must ship in car lots, practically, to get the advantage of large markets, lower railroad rates, and similar advantages. There is not a great deal of information available at present for groups of producers who wish to get together. For that reason it is necessary to make a study of cooperation as it exists in the United States to-day, to collect constitutions, by-laws, a knowledge of the necessary machinery, and to prepare bulletins which will show producers how they can get together. At present they do not know what they may do and do not know what others have done and are doing. There is a great deal of cooperation in this country but it is scattering. The department, therefore, must collect this information and make it available. This must include a study of the methods of accounting and auditing used by organizations which have made the greatest success. The department will go so far as to work out actual forms to be used by these associations. In addition the department is assisting universities and colleges in outlining courses on cooperation and marketing.

MARKET SURVEYS, METHODS, AND COSTS.

The consumer at present does not know whence the product comes and the producer does not know whither it is going. The consumptive capacity of any market and the source of supply to which that market looks are not known to the people generally. Operators in these territories for the most part are the only ones

in possession of such information. If glutting of markets and other conditions resulting in waste are to be avoided, full information as to the consumptive powers of markets, not only through a season but through specific periods, and as to prospective sources of supply and quantities available, must be disseminated. Essential to marketing improvements in fruit sections is a study of auction practices.

MARKET GRADES AND STANDARDS.

An agreed standard is the essential basis of any contract. It is practically impossible to bring about satisfactory methods of dealing between two parties unless there is some well-understood standard which each has in mind when the trade is made. At present there are standards of cotton and of corn, and the commission trade has certain standards which it applies. The producers, however, know very little about standards, except that apple growers have standardized their product to a certain extent. Work to establish standards must apply also to the standardization of containers as to material, size, suitability, etc., as well as to the standardization of the products themselves. A crate of peaches to-day means one thing in one place and another thing in another place. The fundamental prejudices or reasons that have led to this multiplicity of containers must be studied in an endeavor to bring them to some common standard.

NEED OF STANDARDS IN PARCEL-POST MARKETING.

As a preliminary to the developing of the parcel post in marketing we find that we must have some way by which the actual consumer may know what he will get from the actual producer. Experiments in shipping eggs by parcel post are progressing satisfactorily. A number of containers suitable for marketing eggs by parcel post under the regulations of the Post Office Department have been found. Out of the first 25 dozen eggs shipped only 5 eggs were broken, of which 4 were in one badly mishandled package. Out of 24 dozen properly handled there was but 1 broken egg, and that was not broken enough to interfere with its use. Under this system it has been possible to sell eggs at about 4 to 6 cents per dozen cheaper than eggs of the same class were bringing in the city markets.

To be fair in the work to all the interests concerned in distribution special studies are to be made in the possibilities of utilizing service express as well as parcel post.

CITY MARKETING AND DISTRIBUTION.

In the case of city marketing and distribution the producer is closely tied up with the consumer so far as profits are concerned. This makes necessary a study of the usefulness and limitations of farmers' and municipal markets, wholesale and retail, as a means of distributing farm products. Consideration also must be given to huckstering by the farmer himself and the regular huckster. Marketing conditions in various cities where certain types of market have been successful are to be studied with the idea of determining the conditions that have led to success and communicating the information to other cities. The object is to relieve cities of the need of experimenting on lines well tested in other communities, so that each city will have for its use a résumé of the experience of other cities with similar problems.

USE OF TROLLEYS.

In nearly all cities trolleys converge from two to nine directions. In Washington we have trolleys from the rural sections from eight directions. Nothing, however, is done toward utilizing them to bring in the produce of the farm at a low cost for the advantage of the consumer. There is a man who grows grapes within 15 miles of Washington. The trolley cars run through his place, but they do not operate after 12 o'clock at night until early in the morning. It operates but one freight car daily and this stops outside the city limits. He therefore has to drive with his perishable grapes 15 miles to Washington in order to sell them. A night trolley service could land them in about an hour practically at the market place. This condition is not peculiar to Washington. The utilization of trolleys is a complex problem because of the fact that trolley franchises frequently prohibit trolleys from carrying freight. It is a problem that is worth attention because of the possibility it offers of effecting economies.

MARKETING MISCELLANEOUS PRODUCTS AND COLLABORATION.

This work has been and is being approached from a number of different angles by different branches of the Department of Agriculture. The work of the Office of Markets, however, will not overlap or duplicate activities already under way, but will be in the direction of tying up with them all along the line and helping to carry them on effectively. This will include cooperation with the agencies within the department and also with agencies in other departments and in the States. It is particularly important in this work to develop local sources of supply. At present cauliflower is being hauled from Long Island to Chicago at a time when it could be produced in Cook County. Products are hauled from California to El Paso or dumped there when the eastern market is poor, and yet these products can be produced immediately around El Paso. The dumping results frequently in glutting the El Paso market, so that local producers are practically forced out of business. We are carrying coals to Newcastle all the time. Duplication of transportation in handling such products represents enormous waste.

TRANSPORTATION AND STORAGE.

The farmer at present can not learn definitely how to do any of the things that relate to transportation. He applies to his local agent and if he is a courteous one gets some information. This information, however, is bounded very much by the ignorance of the local agent, and this ignorance frequently is dense. In this the farmer has no such advantage as the manufacturer. Practically every manufacturing city of any size has its chamber of commerce or board of trade with a traffic bureau, to which the manufacturer goes regularly when he wants advice on transportation.

One of the first things to be studied is the effect of demurrage practices upon the handling of perishables. Demurrage charges on many lines at the present time are so low that it is cheaper to keep a car on the track at the terminal market as a cold storage and to keep it iced than it is to unload the material and let the car go back to move another load. This, of course, results in serious congestion at the terminal market and frequently in waste of product at the producing center.

Minimum car-lot rules are very inflexible at the present time. It is readily apparent that minimum car-lot regulations should be more flexible and better adapted to particular products. Under the present rule, if some of the present types of refrigerator cars are loaded to their minimum car-lot capacity with peaches, one to three of the top layers may deteriorate seriously before they get to market simply because you can not load that amount into a car and keep it cooled properly.

In connection with transportation an effort will be made to establish pick-up and special-car services—iced market cars and similar carriers.

DISCRIMINATORY PRACTICES.

The New York apple grower at present can get apples to New Orleans practically as cheaply as can the Maryland grower, although New York is many miles farther away and shipment from that State involves anywhere from one to three transfers. This introduces an element of illegitimate competition between areas and there seems to be need of a sensible districting of our territories. Consignment sales are the cause frequently of glutting of markets and many of the other undesirable conditions. For example, a car of pineapples went to New York and the shipper received $1.55 in stamps in return. At the same time people in Washington were paying 25 cents for two pineapples. It is readily apparent that the failure of the New York shipment was not due to the fact that consumption demand as a whole had been satisfied.

COMMERCIAL CORN GRADES PROMULGATED.

The Acting Secretary of Agriculture, under date of January 3, 1914, fixed and promulgated grades for commercial corn to take effect on July 1, 1914.

The corn grades as promulgated are practically the same as the tentative grades formulated August 22, 1913. The principal exception is that in damaged corn, grade 4 is allowed to include one half per cent; grade 5, 1 per cent, and grade 6, 3 per cent of heat-damaged or mahogany corn. This allowance for heat-damaged or mahogany corn is in response to the resolution adopted by the Grain Dealers' National Association and the National Council of Farmers' Cooperative Associations, asking for allowances in this particular. The associations, however, asked for an allowance of 1 per cent for grade 4 and 2 per cent for grade 5, and the new grades permit only one-half of this amount in those two grades. The full allowance requested by these associations of 3 per cent of heat-damaged or mahogany corn in grade 6 is allowed. The request of the Grain Dealers' Association that the grades be not put into effect until July 1, 1914, was granted.

EFFECT OF THE GRADES ON FARMERS.

The anticipated effect of these grades is thus described by the Secretary of Agriculture in his annual report for the year 1913:

Definite standards for the grading of commercial corn and the uniform application of such standards in all markets under suitable Government supervision would be of direct value to our corn growers, in that such standardization would encourage the marketing of dry corn of better quality. Heretofore it has been the common practice to pay practically the same price for all corn delivered at country stations, regardless of its water content or of its soundness. Farmers have not been slow to grasp the situation, and under such a system have naturally made but little effort to market corn in a dry and sound condition. The system has placed a premium on poor and careless farming at the expense of good farm methods and practices.

Under a definite system of grading and the elimination of such terms as "reasonably dry" and "reasonably clean," the farmer as well as the grain dealer will be able to know and fully understand the requirements for the different grades. With a knowledge of the grade requirements the farmer who markets dry corn of good quality will be in a position to demand a premium for such corn. It will not be necessary for him to accept a No. 4 price for corn which he sells under a grade designation of No. 3. He will then have some encouragement to exercise greater care in the harvesting, storing, and marketing of his corn; he can likewise ascertain in advance of sale with a fair degree of accuracy the grade of his corn while in the crib, and, thus not market it until it is sufficiently dry to meet the requirements of a higher grade. The way will be open for real progress in the movement for the production of more corn of better quality, and farmers who grow corn primarily for market will have an incentive to grow earlier maturing varieties, which will contain less moisture when marketed and can be sold at a premium. Likewise, the country shipper will be in a position to pay a premium for good corn, in that he, in turn, will have the assurance of the same definite system of grading regardless of the market to which he ships.

Following are the official grades:

GRADES FOR COMMERCIAL CORN.

By virtue of the authority vested in the Secretary of Agriculture by the acts of Congress of June 30, 1906 (34 Stat., 669), and of March 4, 1913 (37 Stat., 828), to fix definite grades of grain, the following grades for corn are hereby fixed and promulgated, to take effect on July 1, 1914:

Grade classification.	Maximum percentages of—			
White, yellow, and mixed corn.	Moisture.	Damaged corn.	Foreign material, including dirt, cob, other grains, finely broken corn, etc.	"Cracked" corn, not including finely broken corn. (See general rule 9.)
No. 1	14.0	2 (exclusive of heat-damaged or mahogany kernels)	1	2
No. 2	15.5	4 (exclusive of heat-damaged or mahogany kernels)	1	3
No. 3	17.5	6 (exclusive of heat-damaged or mahogany kernels)	2	4
No. 4	19.5	8 (may include heat-damaged or mahogany kernels not to exceed ½ per cent).	2	4
No. 5	21.5	10 (may include heat-damaged or mahogany kernels not to exceed 1 per cent).	3	5
No. 6	23.0	15 (may include heat-damaged or mahogany kernels not to exceed 3 per cent).	5	7
"Sample"	See general rule No. 6 for sample grade.			

GENERAL RULES.

1. The corn in grades No. 1 to No. 5, inclusive, must be sweet.

2. *White corn*, all grades, shall be at least 98 per cent white.

3. *Yellow corn*, all grades, shall be at least 95 per cent yellow.

4. *Mixed corn*, all grades, shall include corn of various colors not coming within the limits for color as provided for under white or yellow corn.

5. In addition to the various limits indicated, No. 6 corn may be musty, sour, and may also include corn of inferior quality, such as immature and badly blistered.

6. All corn that does not meet the requirements of either of the six numerical grades by reason of an excessive percentage of moisture, damaged kernels, foreign matter or "cracked" corn, or corn that is hot, heat damaged, fire burnt, infested with live weevil, or otherwise of distinctly low quality, shall be classed as sample grade.

7. In No. 6 and sample grade, reasons for so grading shall be stated on the inspector's certificate.

8. Finely broken corn shall include all broken particles of corn that will pass through a perforated metal sieve with round holes nine sixty-fourths of an inch in diameter.

9. "Cracked" corn shall include all coarsely broken pieces of kernels that will pass through a perforated metal sieve with round holes one-quarter of an inch in diameter, except that the finely broken corn as provided for under Rule 8 shall not be considered as "cracked" corn.

10. It is understood that the damaged corn; the foreign material, including pieces of cob, dirt, finely broken corn, other grains, etc.; and the coarsely broken or "cracked" corn, as provided for under the various grades, shall be such as occur naturally in corn when handled under good commercial conditions.

11. Moisture percentages, as provided for in these grade specifications, shall conform to results obtained by the standard method and tester as described in Circular 72, Bureau of Plant Industry, U. S. Department of Agriculture.

In testimony whereof I have hereunto set my hand and the official seal of the Department of Agriculture this 3d day of January, 1914.

B. T. Galloway,
Acting Secretary of Agriculture.

VALUE AND PRESERVATION OF HEN MANURE.

A recent bulletin of the Maine Agricultural Experiment Station shows that the poultryman or farmer can materially add to the profits of his business by properly caring for the droppings of his fowls. For example, it is shown that the droppings from 1,000 fowls if preserved without needless loss are worth at least $300 per annum, and this estimate is based on the assumption that less than half of the droppings, or only 30 pounds per hen per year, can be collected.

According to the Maine station, the droppings should be collected daily and mixed with substances which will (1) prevent loss of nitrogen, (2) add sufficient potash and phosphoric acid to make a better-balanced fertilizer, and (3) improve the mechanical condition of the manure so that it can be applied to the land with a manure spreader.

This can be done as follows: To each 30 pounds of the manure add 10 pounds of sawdust, good dried loam, or peat, 16 pounds of acid phosphate, and 8 pounds of kainit. Such a mixture will contain about 1.25 per cent of nitrogen, 4.5 per cent of phosphoric acid, and 2 per cent of potash, which, used at the rate of 2 tons per acre would furnish 50 pounds of nitrogen, 185 pounds of phosphoric acid, and 80 pounds of potash, and at the present price of fertilizing ingredients is worth about $10 per ton. The mixture would furnish a well-balanced stable fertilizer, which, although not fine enough to work well in drills, can be successfully applied with a manure spreader. The treated manure should be well sheltered until time to apply to the land—that is, shortly before plowing.

BENEFIT FROM GROWING LEGUMINOUS AND NONLEGUMINOUS PLANTS TOGETHER.

It has long been known that some plants are benefited and some are injured by association. Association seems to be especially beneficial in case of leguminous plants (peas, clover, etc.) and cereals or grasses. Recent investigations by the New York Cornell and the New Jersey experiment stations throw new light on the reasons for this beneficial effect. It appears that the leguminous plants not only gather nitrogen from the atmosphere by means of their root-tubercle bacteria and are therefore able to make a large growth, but that some of the nitrogen so gathered is passed on to the grain, grass, or other nonleguminous plant associated with it.

The result is a larger growth of the nonlegume and also a higher content of protein, or nitrogenous material, which considerably increases its value as food for stock. Such benefit has been noted from the growth of clover and timothy, alfalfa and timothy, and oats and peas. Other combinations have not been studied. The increased growth of plants in combination over that of single crops, together with the improved composition of the former, has resulted in some cases in an increase of more than 30 per cent in the production of protein per acre. This increased value probably extends to the roots and stems left in the soil and means much in the production of food for stock and in soil improvement.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1913

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., JANUARY 28, 1914 No. 25

FIRMER HOLDING OF POTATOES BY THE FARMERS.

SUPPLY IS NEARLY NORMAL, BUT DISTRIBUTION IS UNUSUALLY UNEVEN. PRINCIPAL POTATO-PRODUCING STATES HOLD SUPPLIES, WITH SHORTAGE IN A NUMBER OF CONSUMING STATES.

The yearly estimates of the amount of potatoes remaining in growers' hands and the stocks in dealers' hands on January 1 in the important potato States just completed by the Bureau of Statistics (Agricultural Forecasts), United States Department of Agriculture, indicate that a larger proportion of the marketable crop of potatoes was still in the hands of farmers on January 1 than had been the case for four years past. The proportion estimated to be in dealers' hands was smaller than for any year of the four except January 1, 1912. The figures showed that the total estimated potato production was below normal, but, owing to the slow movement of the crop up to January 1, the supply for the remainder of the year will be almost normal. Distribution, however, seems to be unusually uneven. The holdings of potatoes are relatively large in the important producing States of Maine, Michigan, Wisconsin, and Minnesota; and relatively small in New York, Ohio, Indiana, Illinois, Iowa, and Kansas, which are important both as potato-producing and potato-consuming States.

In consequence of the firm holding by farmers, the price early in the season has been unusually high, being on December 1 about 17½ cents per bushel higher than a year ago, and 16½ cents higher than three years ago, but 11½ cents lower than two years ago, when potatoes on January 1 were selling for 77½ cents per bushel, and the supply was unusually short owing to the drought of the previous year.

Present conditions do not seem to forecast material, if any, advance in prices in the important producing States this year. In 1911, when supplies were but moderately larger than now, and in 1913 the price movement after January 1 was downward instead of upward. The only other factor which may enter to change the experience of 1911 and 1913 is the somewhat different distribution of the crop which exists this year.

Southern growers who plant in the spring for the early market would seem to be justified, from present conditions, in putting out a normal acreage, but should not expect the big advance in prices which prevailed two years ago.

The estimates indicate that about 42.1 per cent of the marketable supply of potatoes of the 1913 crop remained in the hands of farmers and 9.5 per cent in the hands of dealers on January 1 in the important potato-growing States. These figures compare with 39.8 and 9.8 per cent similarly estimated a year ago, 33.1 and 8.6 per cent two years ago, 40.2 and 10.9 per cent three years ago, and 41.2 and 9.9 per cent four years ago. If, for the purpose of comparison, these percentages were applied to the estimates of total production, it would show total stocks of 123 million bushels on January 1, 1914 (in the 19 States analyzed below), compared with 150 million a year ago, 91 million two years ago, 133 million three years ago, and 142 million four years ago. These figures would indicate that the quantity to be carried toward the close of the season will not be sufficient to cause depressed prices, as was the case particularly four years ago (in some States last year also), nor, on the other hand, will they be so scant as to cause such high prices as prevailed in the spring of 1912.

To show the relation between supplies and prices, the following tabulation is given, showing for the past five years the production, stock on hand January 1, and the prices paid to producers on December 1 and the following March 1 in 19 important potato-growing States:

Years.	Total production. Bushels (000 omitted).	Stocks in growers' hands Jan. 1.		Stocks in dealers' hands Jan. 1.		Total stock Jan. 1 (000 omitted).	Farm prices.	
		Per cent of crop.	Bushels (000 omitted).	Per cent of crop.	Bushels (000 omitted).		Dec. 1.	Mar. 1.
1913-14..	238,946	42.1	100,495	9.5	22,797	123,292	66.2	.....
1912-13..	304,126	39.8	119,678	9.8	30,167	149,845	48.6	47.7
1911-12..	217,532	33.1	72,072	8.6	18,706	90,778	77.6	101.4
1910-11..	261,141	40.2	104,954	10.9	28,463	133,417	49.5	46.9
1909-10..	298,308	41.2	122,997	9.9	29,384	142,381	50.0	47.3

SHRINKAGE IN WEIGHT OF BEEF CATTLE IN TRANSIT.

The shrinkage or loss in weight of beef cattle in the course of shipment from western farms and ranches to the markets has been made a subject of special study by the Department of Agriculture, and what is believed to be the first authentic information on this subject has been compiled and published as Bulletin 25. The investigation covered three years in various cattle-raising sections of the West. The cattle were weighed at the point of loading, on arrival at their destination, and again after having rest, feed, and water. The weight was also taken when the animals were sold. The records include the weighing of Texas and Northwestern range cattle and calves, and of corn-fed, silage-fed, and beet-pulp-fed cattle. In all, 265

shipments were weighed, comprising over 19,000 cattle.

All cattlemen know that when their stock arrive at market they are usually lighter in weight than when they started. This loss in weight is called shrinkage. It is due to excretions from the alimentary canal and from the urinary organs, and to moisture given off by the lungs in breathing. A portion of this loss may be regained at the market by the food and water taken into the system. This is termed the "fill."

The shrinkage of cattle in transit is such a variable factor that no one can say definitely how much it will be during a journey, but by the use of very large numbers of cattle an average shrinkage will be obtained which may be used as a basis for estimating the amount of shrinkage on cattle shipped under similar conditions.

The net shrinkage (that is, the difference between the weight at the point of origin and the weight of the animals when sold at the market after taking the "fill") was found in the department's investigations to range all the way from 15 to 75 pounds per head, or from 2.14 to 7 per cent, depending upon the length of time and other conditions. The time that the cattle were in transit varied from less than 24 hours to more than 72 hours. The normal shrinkage may be regarded as from 3 to 6 per cent of live weight.

The extent of the shrinkage depends upon various factors, among which are the conditions at the time of shipping and the treatment during the drive to the loading pens; the length of time the cattle were held without feed and water before being loaded; the nature of the fill before loading—the greater losses occurring when this consisted of succulent grass, beet pulp, or silage; the weather and climatic conditions at the time of loading, while in transit, and at the market; the character of the run to market, greater shrinkage naturally being caused by slow, rough runs; the time of arrival at market.

The shrinkage during the first 24 hours is greater proportionately than for any succeeding period of the same duration.

The difference between the shrinkage of cows and steers is not as great as is ordinarily supposed. Steers will usually shrink somewhat less than cows of the same weight.

The shrinkage of range cattle in transit over 70 hours during a normal year is from 5 to 6 per cent of their live weight. If they are in transit 36 hours or less the shrinkage will range from 3 to 4 per cent of their live weight.

The shrinkage of fed cattle does not differ greatly from that of range cattle for equal periods of time. Cattle fed on silage have a large gross shrinkage, but usually fill so well at market that the net shrinkage is small. Pulp-fed cattle shrink more in transit than any other class of cattle, and also show a greater net shrinkage.

Fo · a long journey the common method of unloading for feed, water, and rest is to be preferred to the use of "feed and water" cars.

Cattle should be weighed before being loaded wherever practicable, since a comparison of this weight with the sale weight will show the net shrinkage. Moreover, this weight at point of origin may be of material benefit to the shipper in case o a wreck or a very poor run to market.

There is no way of entirely preventing shrinkage in the shipping of cattle, but by judicious care in handling and feeding the cattle just previous to shipping the shrinkage may be lessened. If cattle are to be in transit for 24 hours or longer, it is a good plan to feed about two bales of nice bright hay for each carload a few hours before loading.

When care is used in trailing the cattle to the loading pens, not driving them too fast nor too far in a day and giving them five or six hours a day to graze on the way, long distances may be covered with no apparent injury to the cattle. On arrival at the pens it is well to give the animals a light feed of hay with a little water, or allow them to graze a short time before loading them, unless the grass is very luxuriant. An excessive fill of water or green fodder or grass just before loading is not good for the cattle, as it may cause them to scour in transit; then, too, they will not stand up as well in the cars.

ONLY 27 PER CENT OF TILLABLE LAND UNDER CULTIVATION.

DEPARTMENT OF AGRICULTURE ESTIMATES 829,000,000 ACRES ARE NOT IN USE—ONLY 21 PER CENT OF THE LAND IS NOT AVAILABLE FOR ANY FORM OF AGRICULTURE.

Only 27 per cent of the tillable land of the United States is actually under cultivation, according to estimates of the Department of Agriculture, based upon reports of 35,000 correspondents. These reports were obtained in order to gain information as to the tillable area of the United States, the amount of land that can not be used for crops that have to be plowed but available for pasture or fruits, and the total number of acres that never can be used for agricultural purposes. From the returns, which were generally very consistent, preliminary estimates have been made for each State and for the United States. Further investigation in the Far Western States may modify somewhat the present estimate for those States.

The entire United States, excluding foreign possessions, contains about 1,900,000,000 acres. Of this area about 60 per cent, or 1,140,000,000 acres, is estimated to be tillable; that is, capable of being brought under cultivation by means of the plow. This includes land already under such cultivation and that which in the future may be brought under cultivation by clearing, drainage, irrigation, etc.

Three hundred and sixty one million acres, or 19 per cent, are estimated to be nontillable but valuable for pasture or fruits. Only 21 per cent, or 399,000,000 acres, was estimated to be of no use for agriculture, present or future.

According to the census of 1909, the land area in crops where acreage was given was 311,000,000 acres. This is about 16 per cent of the total land area, or about 27 per cent of the estimated potential tillable area, of the United States, excluding foreign possessions.

In other words, for every 100 acres that are now tilled, about 375 acres may be tilled when the country is fully developed. In the development of the agriculture of the country the land which was most easily brought into a state of cultivation, as the great Mississippi Valley, was the first to be brought into such use. Extension of tilled area will be at greater expense for clearing, drainage, irrigation, etc. The increased production of the future will be the result of increased yields per acre as well as extension of area.

Detailed estimates, by States, are given in the following table:

Land area and estimated proportion potentially available for agriculture, by States.

States or Territories.	Total land area, in millions of acres.	Estimated percentage of land area potentially available for—			Percentage of land area in crops, 1909 census.	Percentage of estimated potentially tillable area which was in crops, 1909.	Acres of estimated potentially tillable for each acre in crops, 1909.
		Tilled crops.	Non-tilled agriculture.	Non-agriculture.			
Maine	19	65	17	18	8	13	7.8
New Hampshire	6	41	32	27	10	25	4.0
Vermont	6	44	29	27	21	47	2.1
Massachusetts	5	52	29	19	13	24	4.1
Rhode Island	1	57	23	20	12	22	4.6
Connecticut	3	50	22	28	17	35	2.9
New York	30	66	18	16	28	42	2.4
New Jersey	5	61	13	26	23	38	2.6
Pennsylvania	29	64	19	17	27	43	2.3
Delaware	1	85	8	7	35	41	2.4
Maryland	6	81	10	9	30	38	2.7
Virginia	26	75	13	12	16	22	4.5
West Virginia	15	63	24	13	12	19	5.2
North Carolina	31	79	11	10	18	23	4.3
South Carolina	20	80	11	9	26	33	3.0
Georgia	38	81	10	9	26	32	3.2
Florida	35	73	13	14	4	5	20.9
Ohio	26	87	9	4	44	50	2.0
Indiana	23	88	8	4	49	56	1.8
Illinois	36	89	7	4	56	63	1.6
Michigan	37	84	9	7	22	27	3.8
Wisconsin	35	79	13	8	24	31	3.3
Minnesota	52	84	10	6	28	34	2.9
Iowa	36	91	6	3	57	63	1.6
Missouri	44	77	15	8	33	42	2.4
North Dakota	45	80	14	6	35	44	2.3
South Dakota	49	75	18	7	25	33	3.0
Nebraska	49	72	21	7	35	49	2.1
Kansas	52	85	11	4	38	45	2.2
Kentucky	26	79	13	8	24	30	3.4
Tennessee	27	74	16	10	24	32	3.1
Alabama	33	77	14	9	22	29	3.5
Mississippi	30	82	11	7	21	25	3.9
Louisiana	29	76	8	16	12	16	6.2
Texas	168	70	16	14	11	16	6.4
Oklahoma	44	74	16	10	27	36	2.8
Arkansas	34	75	15	10	16	21	4.7
Montana	94	50	30	20	2	4	25.0
Wyoming	62	28	42	30	1	5	21.5
Colorado	66	37	33	30	4	11	9.5
New Mexico	78	25	30	45	1	3	31.2
Arizona	73	23	36	41	.....	1	76.7
Utah	53	32	23	45	1	4	22.9
Nevada	70	17	17	66	1	4	28.3
Idaho	53	27	23	50	3	11	8.7
Washington	43	50	24	26	8	16	6.2
Oregon	61	38	32	30	4	10	10.3
California	100	30	20	50	5	16	6.1
United States	1,903	60	19	21	16	27	3.7

PREVENTION OF NAVEL ILL OF COLTS.

The many requests for information regarding the ailment known as navel ill of newly born colts indicate that it exists in many localities. The unfavorable outlook after the appearance of the disease, together with the fact that the disease when present requires the attention of a veterinarian, demands that the breeder should concern himself with its prevention. This disease is also known as joint ill, omphalophlebitis, septic arthritis of sucklings, and pyosepticemia of the newly born.

The disease is caused by a microorganism, and several bacteria have been suspected of being responsible. Every one of the suspected organisms is found abundantly in manure and objects contaminated with manure. The infective material gains entrance into the colt through the open umbilical cord as a result of its coming in contact with litter, floors, or discharges from its dam contaminated by one of the organisms which cause the trouble. There are cases on record where the infection has taken place before birth, and while some investigators claim this method to be the principal mode of infection, still the prophylactic measures adopted to guard against the infection through the navel cord have given good results in a large number of cases. Since infection before birth can not be controlled satisfactorily, we are justified, for all practical purposes, in preventing navel ill by guarding against the infection through the cord at birth or soon afterwards.

Cleanliness of stables where pregnant mares are kept must be insisted upon. This is especially necessary where outbreaks of navel ill have been known to exist. Mares in the last stages of gestation should be placed in a box stall which has previously been cleaned and disinfected. The bedding should be frequently renewed, and the external genitals and neighboring tissues should be kept clean and disinfected with a 2 per cent solution of carbolic acid or 1 per cent liquor cresolis compositus, or any other reliable disinfecting agent. Operations for opening abscesses and removal of afterbirths from cows should not be executed in the immediate vicinity of mares in an advanced stage of pregnancy.

The foal when dropped should be placed on clean bedding. In any event, the cord of the foal should be washed in a disinfectant solution and tied at about 1½ inches from the navel with a band or string which has previously been soaked in a disinfectant solution. The navel cord is then severed about one-half inch below the band with a sharp pair of scissors and again disinfected. The ligature should, however, not be tightened until pulsation of the vessels in the cord has ceased. The stump of the cord is then painted with strong carbolic-acid solution, tincture of iodin, or a mixture of equal parts of tincture of iodin and glycerin. The stump should be washed daily with a disinfectant and either painted with iodin mixture or carbolic acid

or dusted with some reliable antiseptic healing powder. The parchment-like dried stump may be cut off after five days and the navel wound washed with a disinfectant solution and dusted with powder until healed.

The cases of navel ill resulting from infection before birth can not well be guarded against. By keeping those mares which are advanced in pregnancy in good physical condition, the fetus will be expelled immediately upon the opening of the uterine cavity.

Once the infection of the navel cord has set in, the cord should not be ligated, but should be washed in a disinfectant solution and a veterinarian called for the subsequent treatment.

LATE PLANTED COTTON AND THE BOLL WEEVIL.

Occasionally the theory is announced that the boll weevil can be controlled by late planting better than by early planting of the crop. The Bureau of Entomology has conducted many experiments to determine whether late planted cotton will produce a satisfactory crop. The results have all been negative. The advocates of late planting, however, have contended that the experiments of the department have not been conducted on a sufficiently large scale. On this account an unusually large experiment which was provided by natural conditions in Louisiana is of interest.

In the spring of 1913 there was an overflow by Bayou de Glaize in Avoyelles Parish, occurring in May and continuing until early in June. On one side of the bayou a strip of land 1 mile long and from 8 to 10 miles wide was flooded. The levee on the opposite side of the bayou retained the water. Cotton was planted early on the one side and late on the other. It has furnished a large scale contrast between the two methods of planting in the same locality and on identical soil formations.

Examinations which have just been made by the Bureau of Entomology show that a crop of half a bale was made on the side that was not overflowed where the planting was early, while the opposite side, which was late planted, yielded much less. A few illustrations out of many that were obtained will be given. O. H. Joffrion obtained a yield of 1,125 pounds of seed cotton from a crop planted on April 15, while the crop planted across the bayou on May 20 yielded 650 pounds of seed cotton per acre. O. P. Couvillion planted on May 22 and obtained one-fourth of a bale per acre. In 1911 on the same field he produced a half a bale per acre.

The illustrations that have been given show the general difference between the early and late planted cotton. The observations, therefore, prove in a very definite way that late planted crops are sure to be injured more severely than crops planted early.

NAMING FRUITS AND VEGETABLES CORRECTLY.

One of the offices of the Bureau of Plant Industry is concerned in naming fruits and vegetables correctly. It is the privilege of anyone having an unknown variety of fruit or vegetable to send specimens of it to this office to be identified. This work is done absolutely without cost to the sender.

The importance of naming varieties correctly is not realized until the general confusion which results to truck growers, fruit growers, and farmers from incorrect naming is considered. In a great many cases one variety of vegetable is sold under a great many names. For instance, of 300 varieties of cabbages listed, there are really not more than 10 varieties. The same condition prevails throughout the vegetable list.

A careful and complete description of all varieties of vegetables that resemble the standard sorts is extremely helpful to seedsmen and gardeners in general. For this reason the Bureau of Plant Industry is endeavoring to standardize all the commercial varieties of vegetables grown in the United States.

The names of new fruits are chosen in conformity with rules adopted by the American Pomological Society which cooperates with the Department of Agriculture in its investigations.

In making detailed descriptions of the different varieties for the files in the Bureau of Plant Industry every effort is made to secure exact details. Water-color paintings are made of new and little-known varieties to complete the illustrations of standard varieties already on file.

There is now being compiled a complete history of the different varieties of fruits in this country, their origin, and development. There is also being collected interesting and instructive biographical information regarding the scientists who have materially aided the development of the American fruit industry.

Any grower of fruit or vegetables who wishes to send specimens and receive information regarding their right names may advise the Bureau of Plant Industry beforehand, and he will then be supplied with a suitable mailing box, which may be returned, containing the specimens, without postage.

HOW TO READ THE WEATHER FLAGS.

The Weather Bureau displays at certain points the information contained in its forecasts and warnings by means of a system of flags. While the flag system has the advantage of being comparatively inexpensive to install and maintain, it is not in general use, since in large cities the flags are quickly discolored, and on account of the prevailing smoke and haze it soon becomes d fficult to distinguish them.

The interpretation of these displays may be more easily mastered if it is kept in mind that the meaning is conditioned on the color and form of the flag; thus a white flag, if displayed alone, means clear or fair weather, with practically no change in temperature; a blue flag alone indicates general rain or snow, with stationary temperature; a flag composed of equal portions of white and blue indicates local rain or snow, as contrasted with general rain or snow. A triangular flag is used to indicate temperature changes. When displayed above any one of the flags already mentioned it indicates rising temperature; when below, falling temperature.

Forecasts of decidedly lower temperature, or much colder, are indicated by the display of the cold-wave flag—a white rectangular flag with a black square as a center. The cold-wave flag is always displayed alone.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

Vol. I WASHINGTON, D. C., FEBRUARY 4, 1914 No. 26

THE KITCHEN THE MOST IMPORTANT ROOM IN THE FARMHOUSE.

The Importance of an Economically Constructed and Comfortable Home.

The importance to the farmer of having an economical farmhouse has been emphasized by the farm architect of the Department of Agriculture, who states that the mental and physical fitness of the laborers both within the house and in the fields are vitally affected by the building that affords the family shelter.

The most important building on a farm is the home. The health, comfort, and happiness of the family are dependent upon its construction and equipment, and unless these matters are looked after the sanitary dairy barn or the economically constructed buildings for stock are of little value. Happiness and contentment in the family are as essential to efficient service as improved tools and outbuildings.

Although the housewife spends, in many cases, a lifetime in her "workshop," the kitchen, and the family rooms, she is not as a rule capable of planning a house in the highest degree serviceable and comfortable without assistance. Her help, however, is essential to the farm architect, as the result of his plans most vitally concerns her.

One of the most important details regarding the average American farmhouse is that it must be inexpensive. The average annual net income of a farmer to-day, after deducting 5 per cent interest on his investment, is less than $400. This does not mean that the houses may not be attractive. They may, if intelligently planned and with the help of vines, shrubs, and trees, become the prettiest spots in the landscape, and more beautiful and inexpensive than the crowded city houses.

TO ECONOMIZE THE HOUSEWIFE'S STRENGTH.

The possible economy in household labor and the conservation of the strength of the housewife are two important factors to be considered in the construction of a farmhouse. Pleasant and comfortable farm homes tend to hold families together; but the cheerless, unlovable, and insanitary houses drive boys and girls to the cities.

The Office of Farm Management of the Department of Agriculture has now undertaken to investigate this problem systematically and to evolve practical improvements for the benefit of the farmer's home.

Certain features are often overlooked in providing economical arrangements for the household when they might be easily provided for. One of the specialists of the Office of Farm Management learned from a woman in Pennsylvania, who had broken down from overwork, that she had been carrying coal from the barn for years. When the husband was asked if there was any reason why a coal bunker could not have been provided near the cookstove and filled directly from the wagon, he answered that there was none, but that no one had ever thought of it. This one detail has been found neglected in other cases where it could have been easily remedied, if only someone had thought of it.

BEAUTY WITH SIMPLICITY AND ECONOMY.

After economy in the construction of the building and in the housework has been attained, attention will be given to developing beauty. Simplicity in line and good proportions are meant by the use of this word beauty, and not so-called applied "ornaments." This simplicity is entirely in keeping with a general plan of economy.

Economy, however, is not a synonym for cheapness. Double-strength glass may even be more economical in a tenant house than single strength, notwithstanding its greater first cost. A kitchen sink may be a paying investment, although it excludes a bay window or a fireplace, which has been the pet notion of the housewife. Screened-in kitchen porches, sleeping porches, double or triple windows, and kitchen conveniences are fine economical features which even the smallest house plans may well consider. Separate dining rooms for families that generally eat in the kitchen are less important, as are "parlors." These separate rooms may have complete systems of plumbing, heating, and lighting which involve additional expense. The kitchen is the most important room in the farmhouse.

For the average farmer, economy bars a room especially reserved for weddings and funerals. A back stairway in small houses is an unnecessary luxury. Large halls which are never used to live in, but merely as thoroughfares, are a feature which can be dispensed with in the interest of a smaller outlay of money.

Other features that should give way to a comfortable and convenient kitchen are narrow porches, filigree work, numerous angles in walls and roof, useless doors. There should be an intelligent purpose for every cubic foot of space and for every piece of material about the building, if possible.

It may not be found practicable for the Department of Agriculture to furnish plans and specifications of farmhouses worked out for particular individual needs. However, it is believed to be desirable to work out plans and specifications for the general needs of farmers and to illustrate and explain the plans so that the farmer may understand the principles involved and apply them when he remodels his present house. The Office of Farm Management is endeavoring to help the farmer and the farmer's wife in this way.

HOW HOG CHOLERA IS BEING COMBATED.

The Department of Agriculture during the past year has been conducting campaigns in Indiana, Missouri, Iowa, and Nebraska to control the contagious disease of hogs, known as "hog cholera," by means of antihog-cholera serum and farm quarantines. In one county (Pettis County, Mo.) where there was a loss of 18 per cent in 1911 and 25.6 per cent in 1912 of all hogs raised, there was only a loss of 14.7 per cent up to November, 1913. This decrease was due to the use of the serum, which, although not used there by the department's agents until August, 1913, materially reduced the loss. About 60,000 hogs were raised during the past year, and of the 10,000 that died of the hog cholera only about 1,000 were lost after the active use of serum and quarantine measures were inaugurated.

In every county where these measures were employed, even though begun after the disease had continued its ravages for some time, there was less loss from hog cholera than in either of the two preceding years.

In addition to its great function as a preventive, it has been found that the antihog-cholera serum would cure a large proportion of hogs in the early stages of the disease and render them immune after recovery. However, if hogs are not treated by this serum, from 75 to 100 per cent in all affected herds die. This serum, so far as is known, is the only thing that will prevent the disease.

Of hogs actually sick when treated, the department's inspectors lost but 25 per cent during the past summer. Of well hogs in diseased herds, 2.8 per cent died after being treated, and of hogs in exposed herds less than 1 per cent died after being inoculated with the serum. In an infected herd there is always a certain proportion of hogs that are well.

The inspector examines the hogs when he arrives, takes the temperature of all hogs in the herd, and separates the sick from the well. The temperature is an indication of the sickness. The temperature of a sick hog, unless the hog is near death, will run above 104° and sometimes as high as 107° or 108° F.

Some States are engaged in the manufacture of serum to prevent this disease. This serum requires special treatment to preserve its quality and a qualified man to produce it. Sufficient serum to treat an average 100-pound hog costs about 30 cents at a liberal estimate. The treatment is by hypodermic injection.

The department in initiating its campaign against the devastating hog disease has only been able to commence in a few of the districts where the cholera was the most widespread and where the active cooperation of the State was offered in enforcing the ordinary quarantine measures, etc.

The object of the department has been to endeavor to control the disease and, if possible, eventually to eliminate it from the country. To secure this end the best efforts of the farmer himself are necessary. The campaign against this devastating sickness during 1913 was planned in the territory selected along three lines:

1. The education and organization of the farmers in the districts selected, to be carried out primarily by the State college.

2. The enforcement of sanitation and restrictive regulations by the State veterinarian.

3. Active supervision by the Bureau of Animal Industry of the department, and the inoculation of diseased and exposed herds with the antihog-cholera serum.

A county in each State was selected as a unit, and the method of work in that county was, briefly, for the State college to secure the cooperation of intelligent, active farmers in each township in the county. These men were called volunteer assistants and they were to keep in close communication with the department's inspector stationed in that area, keeping him informed of conditions and securing statistics concerning the hog industry. In this manner conditions were pretty well learned in the territory under inspection. When an outbreak of hog cholera was reported the department's inspector went to that outbreak and saved all the hogs he could by treatment with serum. As the disease is very easily transmitted, he then protected all herds in the immediate vicinity by inoculation. The idea was to form a zone of immune animals around the infected center.

Hog cholera is caused by a germ that exists in the blood. It is an organism apparently so small that the most powerful microscopes do not show it. However, it is easy to demonstrate its presence by inoculating a small part of the blood from a sick hog into a well one, which produces the hog cholera.

Hog cholera is a disease which seems to be stopped to a degree by the frosts of winter, although frost can not be said to stop a case after it has taken hold of its victim. However, it seems to prevent the rapid spread of the disease. The result is that in springtime the affection is as a rule at the lowest ebb but increases rapidly from that time until fall.

Hog cholera does not seem to affect any particular breed of hogs more than another, and while generally the careless farmer is more apt to have the disease among his hogs than the careful one, the disease sometimes occurs where the conditions are sanitary.

It is hoped that the work may be extended gradually until the disease is completely controlled or eliminated. The fact that hog cholera is carried not only by the hogs themselves but by birds, dogs, streams, and even on the feet of men going from one farm to another shows how necessary it is that the campaign be thorough and that farmers exert their best efforts to assist in the work.

SAND-CLAY ROADS SHOULD BE WORKED IN THE SPRING.

DIRECTIONS FOR CONSTRUCTION AND MAINTENANCE.

There are at present about 35,000 miles of sand-clay roads in the United States, mainly in the Southern States, according to the Office of Public Roads, United States Department of Agriculture. The time to work the roads is in the spring when the soil is damp. If the working of the roads is deferred until late in summer, when they are dry, they are not only much more difficult to put in proper shape, but the cost of repair is greater than if they were worked early in the spring.

Previous to 1894 comparatively little, if any, of these roads existed. The popularity of this type of road is due to the facts that it is cheap, comparatively firm and durable, easy to construct and repair, and that the materials out of which it is built are plentiful in many sections of the country.

The sand-clay road is made by mixing the sand and clay in such a way that the grains of sand touch each other, the spaces between the grains being filled with clay which acts as a binder.

The approximate mixture of sand and clay may be determined by filling a vessel with a sample of the sand to be used and another vessel of the same size with water. The water is poured carefully into the sand until it reaches the point of overflowing. The volume of water removed from the second vessel represents approximately the proportion of clay needed.

The proper proportion of sand and clay can best be determined, however, as the work progresses, as some clay will contain more sand than others. In fact, clays are very frequently found which already contain about the right proportion of sand.

If the road to be treated is sandy, the surface is first leveled off and crowned with a road machine, the crown being about one-half inch to the foot from the center to the sides. The clay is then dumped on the surface and carefully spread, so that it will be from 6 to 8 inches in depth at the center, and gradually decreasing in depth toward the sides. A layer of clean sand is then usually added, which is thoroughly mixed with the clay, either by traffic or by means of plows and disk or tooth harrows.

The best results have been obtained by thoroughly mixing or puddling the materials when wet. For this reason, it is desirable that the mixing be done in wet weather. The mixing can be left to the traffic after the materials have been properly placed, but this involves a whole winter and spring of bad road, and even then the mixing is not always satisfactory. In all cases, it is advisable to dress the road with a road machine or split-log drag after the materials have been thoroughly mixed, and to give it a crown of not more than 1 inch nor less than three-fourths inch to the foot from the center to the sides. A light coating of sand may then be added. The use of the road machine or drag should be continued at frequent intervals until the surface is smooth and firm.

If the road to be treated is composed of clay, it should first be brought to a rough grade with a road machine. The surface should then be plowed and thoroughly pulverized by harrowing to a depth of about 4 inches, after which it is given a crown or slope of about one-half inch to the foot from the center to the sides. It is then covered with 6 to 8 inches of clean, sharp sand, which is spread thicker in the center than at the sides. The materials should then be mixed with plows and harrows while they are comparatively dry, after which they are finally puddled with a harrow during wet weather. If clay works to the surface and the road becomes sticky, more sand should be added.

The road is then shaped, crowned, and ditched in the usual manner with a road machine. This should be done when the surface is soft yet stiff enough to pack well under the roller or the traffic. Wide but shallow ditches should be provided on both sides of the road, and culverts or cross drains should be placed wherever water flows across the road, for it is exceedingly important that the "sand-on-clay" roads be well drained.

After the clay-on-sand, or the sand-on-clay, road is completed, it should be carefully maintained until the surface becomes firm and smooth. The construction of this type of road is by no means a quick operation. If soft, sticky places appear, more sand should be added, and if loose, sandy places are found, more clay is needed. It is just as important to attend to these small details as to any other part of the work, for if they are neglected the road is liable to fail.

It requires approximately 1 cubic yard of clay to surface 1½ running yards of road 12 feet in width, or about 1,175 cubic yards to the mile. From ¾ to 1 cubic yard will make a load for two horses on a dry clay road. The cost of the road will therefore depend largely upon the distance the material is hauled, the average being from $500 to $1,000 per mile. A road built under the direction of the Office of Public Roads at Gainesville, Fla., 1 mile long, 14 feet wide, and having 9 inches of sand-clay surface, cost $881 per mile, or 10 cents per square yard. Another sand-clay road built by the office at Tallahassee, Fla., 16 feet wide, 7 inches thick, cost $470 per mile, or about 5 cents per square yard.

WEATHER BUREAU TO PREPARE FOR OPENING OF PANAMA CANAL.

Asks to be Allowed to Establish Caribbean Weather Service, and to Give Special Attention to Earthquake Observations in Canal Zone.

In order to protect the shipping that will use the Panama Canal, the Weather Bureau of the Department of Agriculture has asked for authority to extend its weather service to the Caribbean Sea so as to obtain complete meteorological reports from 16 stations. In the belief that this whole region will become a great highway for vessels after the opening of the canal, the Weather Bureau wishes to restore certain features of the comprehensive weather service established throughout the West Indies at the time of the Spanish War in the interests of the fleets and transports.

One of the new stations would be a fully equipped station of the Weather Bureau similar to those within the United States, and located in the Canal Zone itself. Substations would be maintained at appropriate points along the canal for use in the proper dissemination of Weather Bureau information. Each station would make two observations a day, at 8 a. m. and 8 p. m. In addition to the land station the Weather Bureau wishes also to provide for the extension of marine reports by wireless from vessels plying the waters of this region, so as to provide the safest possible information covering the entire Caribbean section.

The weather observations in the Caribbean Sea, it is believed, will be of special service in connection with the various storm warnings now communicated through the station signals and by wireless to all shippers in the Western Atlantic and the Gulf district. In these storm warnings will be used special reports from the entire West Indies.

The Weather Bureau also has asked to be allowed to continue as a regular feature the seismological observations now being made by the War Department to supply information as to earth movements likely to affect canal construction. The bureau believes that maintenance of these observations is of great importance and has asked authority of Congress to make seismological observations in the Canal Zone a regular part of its work.

DRIED FRUITS AN ECONOMICAL AND VALUABLE DIET.

Farmer's Wife May Add to Variety of Daily Fare by Using Them Alone or in Cakes, Puddings, and Confectionery.

Fresh fruits are divided into two classes, "flavor fruits" and "food fruits," according as they are valued for their flavor or as a food, says the Chief of the Office of Nutrition Investigations. Those that are 80 per cent or more water fall under the first classification (apples, pears, peaches, and most of our common fruits), while those containing less fall under the latter (bananas, grapes, and figs). The food value of a pound of dried fruit is, of course, much greater than that of a pound of fresh fruit. A pound of the latter will yield an average of about 6 ounces dried, but the amount of water in the original fruit is no guide to the food value of the dried product.

The main change which takes place during drying is the loss of water, but other changes also occur. Very often the right degree of heat produces changes not unlike those which occur during natural ripening on the plant. In some cases the crude fiber which forms the basis of the plant structure is reduced in amount or softened. Much of the starch is changed to some form of sugar. The change in flavor is due partly to the proportionate increase of sugar from loss of water and to absolute increase from chemical changes.

To determine which of two fruits is more economical, not only must the cost per pound be known, but the amount of bodily fuel that makes for energy and protein (muscle-building material) a pound of each would supply. One must also consider what expense is required to prepare each for the table. Grapes commonly cost less a pound than raisins, but a given sum spent for grapes will buy a smaller amount of nutritive material, since the proportion of water is much higher than in the raisins.

On the other hand, low-priced fresh fruit is sometimes as economical as a somewhat cheaper dried fruit, since the latter would require sugar and fuel to make it ready for the table.

Attention should also be directed to the extent of inedible material.

DRIED FRUITS REASONABLE IN PRICE AS COMPARED WITH OTHER FOODSTUFFS.

Numerous studies made of nutritive values by the Office of Experiment Stations have shown that dried fruits may be termed an economical article of diet. Fruit products in general contain little protein, but as sources of energy, derived almost entirely from their sugar, dried fruits are decidedly cheaper than meats and compare favorably with dairy products. They are, however, more expensive than cereals and starchy vegetables, such as dried beans and potatoes.

Under no circumstances should fresh and dried fruits be thought a luxury, since they supply the needed nutritive material as an integral part of the diet, besides adding to the attractiveness of the daily fare. If they are to be eaten raw, brands made and marketed in a cleanly way should be obtained.

The amount of dried fruit produced in the United States increased 575 per cent between 1899 and 1909. California produces more than four-fifths of the yearly output. According to a very rough estimate, each person in this country consumes on an average 5 or 6 pounds of dried fruit a year.

The value of the product rose from between $4,000,000 and $5,000,000 to over $21,000,000 in 10 years. The average wholesale price, however, has not advanced with the increased demand—on the contrary it has dropped from about 5½ cents to about 4½ cents per pound.

Dried fruits are especially useful when the supply of fresh fruits is limited, or where storage space for fresh fruits is lacking. Besides being used alone, they may be mixed into cakes, puddings, confectionery, and other dishes. They afford a nutritious and economical way of securing a variety in the diet, which is often overlooked by the housewife.

CORRECTION REGARDING SOUTHERN CATTLE AT THE INTERNATIONAL LIVE STOCK EXPOSITION.

In an item in the News Letter of January 14, 1914, the ownership of the Hereford bull Point Comfort 14th, the winner of the grand championship for Hereford bulls at the International Live Stock Exposition at Chicago, was erroneously credited to the Lespedeza Farm, Hickory Valley, Tenn. As a matter of fact this bull and the other Hereford cattle mentioned were from La Vernet Stock Farm, near Jackson, Miss. The Shorthorn cattle referred to in that item, however, were from the Lespedeza Farm as stated.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., FEBRUARY 11, 1914 No. 27

SPRING PREPARATION ON SOUTHERN FARMS.

In no section of the country does a well-prepared seed bed give better returns than in the southern States. The best spring preparation of the soil is practically impossible unless it has been properly turned and deeply broken during the previous summer or fall. The necessity for deep plowing in the South is probably not realized by those who are not familiar with the heavy rainfall in this section, which frequently packs and runs the particles of soil together so as to exclude air and sunshine. The absence of freezing prevents any loosening up of the particles; besides in many places there is an almost impervious hardpan of subsoil, either natural or brought about from a continuous custom of shallow plowing. In other sections this deepening and loosening of the soil is done partly at least by the forces of nature, but it can only be accomplished by the plow in the South.

The best implement for deep breaking of the soil is the disk plow, which turns, pulverizes, and mixes at the same time. When properly adjusted the disk breaks the land deeply and thoroughly loosens it, mixing this soil and the subsoil to some extent, but does not turn to the surface enough of the inert subsoil to injure the succeeding crop. The next best method for deep breaking is moldboard plowing, set to turn furrows on edge, and this is followed by a subsoil plow in the same furrow as deeply as desired.

If the cover crop is to follow the fall breaking a thorough preparation of the seed bed should be made before planting the seed. If no cover crop is sown the disk harrow or spring-tooth harrow should be run over occasionally to crush clods and keep surface crust broken for the admission of air and sunlight. The usual method is to flat break, and where this is done it is best to throw up into beds before planting. Planting may be done with small plows, or just as effectively and much faster with a disk cultivator set at the proper angle. Should there be clods a roller may be used, and this is followed with a section harrow.

With nearly all field crops a firm seed bed is preferable. Only the first few inches need to be freshened and pulverized at planting time.

Where there has been no fall and winter breaking done, as is the rule in some sections, it is not advisable to break as deeply in the spring as in the fall. It is found more necessary to get spring-broken land finely pulverized and thoroughly prepared before planting. It is better to delay planting several days rather than put the seed in a poorly prepared bed.

HOW THE WEATHER BUREAU FORECASTS STORMS, FROSTS, AND FLOODS.

Many people have an idea that there is something mysterious and occult about the work of the Weather Bureau in forecasting the coming of storms, frosts, and floods. Not a few think that the observers must necessarily get their data by reading the planets, the stars, and the moon. As a matter of fact, the forecaster of the bureau foretells the coming of disturbances in a businesslike way, very similar to that in which a man who has ordered a shipment of goods would estimate the date of its arrival.

Suppose a business man had ordered a carload of pineapples from the Hawaiian Islands. He would know the average time it would take the steamer to make the trip to the Pacific port, the average time for unloading and loading into refrigerator cars, and the average number of days to be allowed these cars for their trip across the continent to New York. His estimate, however, would be subject to error, because the steamship might be delayed by fog or the cars might meet with an accident.

Storms, like pineapples, as a rule do not originate in the United States. They come to us, some from the Philippines, Japan, Siberia, Alaska, Canada, or the Gulf of Mexico. The Weather Bureau gets cable, telegraphic, or wireless notice of a foreign storm. Station after station, or vessel after vessel reports the storm's arrival in its neighborhood, so that the general direction and rate of progress can be determined very early. In fact, the arrival of some storms can be foretold 10 days in advance.

The forecasters watch for the region of low barometer which is the storm center around which the winds blow. This whirl or eddy moves bodily forward with the general eastward drift of about 650 miles a day in our latitudes. The forecaster determines the direction of movement of the storm and its velocity.

When weather disturbances are reported, the forecasters know from experience about how long it takes them to reach our Pacific coast, and then how long after they will reach the Atlantic coast. For example, if a storm coming from Siberia drifts eastward around the North Pole and reappears in Alaska, it should appear in Washington and Oregon in about two days; should get to the Great Lakes in six days and to the Atlantic coast in seven or eight days.

Unexpected conditions may delay storms or divert them from the straight track, just as a refrigerator car may be thrown off its schedule or be shipped by

accident on a wrong road. Some of these storms deplete themselves by running into regions of high barometer which are of greater magnitude and extent than the storm itself. Some of them, however, travel completely around the world.

To keep tab on cold waves that come into the United States from Canada and Alaska, the Weather Bureau studies the Canadian Weather reports. England sends reports from Iceland, the British Islands, and Continental Europe, and daily reports come from St. Petersburg on the conditions in Russia and Siberia.

The same businesslike system used in tracing the track of a storm is applied in determining the arrival of frosts.

Flood forecasts are made in much the same way. Information as to the amount of rainfall at the head waters of streams that cause floods are covered by telegraphic reports sent by local observers. As this rain reaches the main channel, the height of the water in the channel is determined by successive gauging stations. Past records establish how much a height, say, of 20 feet at Dubuque, Iowa, will produce at Davenport, another station 80 miles down the Mississippi. This plan is followed all the way down the river, and at each point full allowance is made for the effects of water from tributaries, and from additional and local rainfall. As a result of these observations in the recent flood the people of Cairo had warning a week or 10 days in advance. The Pittsburgh district can be given only 12 to 24 hours' notice, because a flood is upon them within 24 hours after a heavy rain storm.

ATLANTIC COAST FISHERIES FURNISH VALUABLE FERTILIZERS.

In helping the manufacturers of soil fertilizers to increase their output, the United States Department of Agriculture believes that the interests of the farmer are enhanced. The use of fertilizers to supply nitrogen to the soil is of continually increasing importance to our agricultural population. Fish refuse has proved an important source of organic nitrogen for fertilizing purposes, and the necessity of preparing it in commercial form has led to the development of the fish-scrap industry in our Atlantic States.

The department has, therefore, been conducting investigations, results of which have just been published in a pamphlet entitled "The Fish-Scrap Fertilizing Industry of the Atlantic Coast," with a view to assisting the development of this industry.

There are at present about 40 factories on the Atlantic coast whose main output is fish scrap and fish oil manufactured from menhaden. These are found all the way from Maine to Florida. The business reached its high-water mark as long ago as 1884, and the profits since have never been so great, owing to the reduced price of oil and scrap resulting from the competition of other products. This is true notwithstanding the improvements that have been made in the methods of industry. The annual output in oil and scrap has not varied greatly from 70,000 tons of scrap and 35,000 barrels of oil during the past 30 years. There has been no growth in the recent past which would warrant a belief in a growth in the future. However, there seems every probability of a steady demand for this fertilizer.

The great success which fish scrap has met with as a fertilizer is due in part to the fact that besides containing nitrogen it furnishes organic matter to the soil which inorganic fertilizers do not do. Ammonium sulphate, an inorganic substance, a by-product of coke ovens, supplies almost 50 per cent of the nitrogen used as fertilizer in this country.

NINE OUT OF TEN "SICK" HOGS HAVE HOG CHOLERA.

The Department of Agriculture is in receipt of frequent inquiries concerning methods for distinguishing hog cholera from other swine diseases. The specialists in hog-cholera investigations answer these inquiries as follows:

Although at first thought this matter of diagnosis appears to be of prime importance, in reality it is not so important or so difficult as it seems. It is estimated that at least 90 per cent of all deaths of hogs from disease in the United States are caused by hog cholera. Therefore, in the case of any fatal outbreak the chances are about nine to one that the cause is hog cholera. It is true that other infections may and do frequently complicate outbreaks of hog cholera, but in such cases the germ of hog cholera is the primary cause of the disease; and if we can take care of the germ of hog cholera the pig will usually overcome the other infections himself.

The symptoms exhibited by hogs sick of hog cholera are not sufficiently distinct from those produced by other maladies, so that a positive diagnosis can be made only through a careful consideration of a number of other fa tors in connection with the symptoms. From a practical standpoint the important thing is to recognize hog cholera as soon as possible after its appearance in a herd in order that antihog-cholera serum may be applied before the disease progresses too far. Good serum may be depended upon to protect well hogs, and even to cure a large percentage of those in the earliest stages of the disease, but it will not be of much avail when used upon hogs that are already visibly sick.

The following suggestions to farmers are offered as an aid to the early recognition of hog cholera in a herd:

1. Keep posted concerning the condition and health of hogs on other farms in your neighborhood. Sick hogs on a neighboring farm are a positive menace, for the germs of hog cholera are easily carried on the feet of men or animals.

2. Look over your herd regularly in order that any sick hogs may be promptly discovered.

3. If any hogs in the herd are found to be "off feed" or appear in anywise sick, separate them immediately from the remainder of the herd and keep them and the main herd under close observation daily. If there is a tendency for the disease to spread in the herd, the trouble is probably hog cholera. This diagnosis may be confirmed by killing one of the sick animals and examining the organs in the manner described in Farmers' Bulletin 379.

4. When the first symptoms of sickness are observed, an immediate change of feed sometimes corrects the trouble. This is particularly true of swill-fed hogs.

5. If there is any tendency for the disease to spread in the herd, do not temporize, but immediately treat the herd with serum from the State college or State live stock sanitary board. Prompt administration of the serum is essential to success.

6. Remember that hog cholera kills millions of hogs where other diseases kill thousands. Dismiss from your mind all thought of such diseases as "lung plague," "infectious pneumonia," "pig typhoid," etc., for these are generally merely fanciful designations given to hog cholera by uninformed men.

MORE TERRITORY FREED FROM CATTLE TICKS.

The territory in the South freed from cattle ticks and released from quarantine has been increased by 17,106 square miles by an order issued by the Acting Secretary of Agriculture, effective February 16, 1914, releasing additional portions of Virginia, North Carolina, Tennessee, Georgia, Alabama, Mississippi, Oklahoma, and Texas. This action has been taken as a result of further progress made in the extermination of the ticks which spread splenetic or Texas fever of cattle. The total area released since the beginning of the work in 1906 now aggregates 215,908 square miles, and amounts to about 30 per cent of the territory infected at the time the work was undertaken.

The portions of the several States released from quarantine under the order mentioned are as follows:

In Virginia: The county of Sussex and the balance of the county of Greenesville.

In North Carolina: The counties of Moore, Hoke, Scotland, Robeson, and New Hanover.

In Georgia: The counties of Morgan and Franklin.

In Tennessee: The remainder of Marion County.

In Alabama: Portions of the counties of Jackson and Sumter.

In Mississippi: The counties of Clay, Jasper, Smith, Scott, and Leflore, the remainder of the counties of Lowndes, Holmes, Madison, Attala, Rankin, Noxubee, Chickasaw, and portions of the counties of Claiborne, Warren, Yazoo, Sharkey, Bolivar, Newton, Grenada, Leake, Monroe, Jones, and Lafayette.

In Oklahoma: The county of Cotton, and the remainder of the counties of Tillman, Grady, Craig, and Ottawa, and portions of the counties of McClain, Osage, and Delaware.

In Texas: The remainder of the counties of Foard, Knox, Haskell, and Mitchell, and portions of the counties of Throckmorton and Wilbarger.

Tennessee is the first of the States extensively infested by the ticks to be entirely freed from this pest and released from quarantine. In 1906 about one-half of this State was under quarantine. The order just issued releases a portion of Marion County, which was the last remaining part of the State to be cleaned up and released. The success of the work in Tennessee has been achieved through hearty cooperation by State and county officers and cattle owners with the Federal authorities. Several other States have also made rapid progress in getting rid of the ticks and now have large free areas.

VALUABLE FARM LAND IN ALASKA, BUT HOMESTEADERS MUST ENCOUNTER MANY DIFFICULTIES.

So far as topography, soil, and climate determine the matter, Alaska has probably 100,000 square miles of area on which there are possibilities for farming and grazing. The larger portion of the farming land is in the interior, in the Yukon drainage, according to the Department of Agriculture's new bulletin entitled "Possible Agricultural Development of Alaska."

Currants, raspberries, gooseberries, strawberries, blueberries, and cranberries are plentiful in Alaska. Varieties of wheat, oats, rye, barley, potatoes, and many other vegetables have matured every season since the department started its work at its two most northern experiment stations. The department has four stations in Alaska.

It has been positively demonstrated that forage crops, as well as potatoes and other garden vegetables, may be grown in the southwestern and central portions. Chicken raising is also proving feasible. It has also been estimated that a great number of farm products are shipped in that might easily be raised on the ground.

The new bulletin on Alaska, while citing so many optimistic facts, also warns the homesteader that there are many difficulties to be encountered.

On the south coast, where the climate is mild, tillable land is scarce because of the proximity of the mountains to the shore line; elsewhere in Alaska the winters are long and very cold, and frost-proof buildings must be provided for shelter of family and stock.

The ground freezes to a great depth, and there is but a short period during which this can thaw, and the surface is covered with an accumulation of undecayed moss and other vegetable material serving as a protection to the frost and a reservoir for moisture. The frost line under natural conditions sinks but a

few feet during a season, and the thawed layer is usually a morass of muck in all portions of Alaska where tillage is possible. This condition makes land travel almost out of the question during the summer until wagon roads shall have been built, and these must be largely of the corduroy type. Meantime the farm home must generally be located close to navigable water.

The swampy character of much of the surface of Alaska makes it a great breeding ground for mosquitos and gnats, which are almost intolerable pests to both man and beast.

The Federal homestead laws extend to Alaska, excepting that instead of 160 acres, 320 may be filed upon. Very little of the available land has been surveyed, but that work is now in progress. One may locate on unsurveyed land, file a claim, and establish lines by metes and bounds, but he can not secure a title until a survey has been made by an authorized surveyor and the survey approved. If the survey is made in advance of that made by the Government, it is done at the expense of the homesteaders, and that is heavy.

That Seattle, Wash., is nearer Maine than it is to the extreme western point of Alaska; that the mean annual temperature of Sitka is about the same as that of Washington, D. C.; that Alaska has numerous deep, land-locked, ice-free harbors; that the coast line is 26,000 miles long, and that there are 6,000 miles of navigable rivers in our northern Territory—these facts, not generally known, are brought out in the new bulletin. The extent of this wonderful country with its scant population of 65,000, its mountains, its climate, and its soils, are fully described. This publication can be had free from the Department of Agriculture by application for Bulletin 50.

DEPARTMENT OF AGRICULTURE TO ISSUE NEW SERIES OF SERVICE AND REGULATORY ANNOUNCEMENTS.

A new series of publications to be known as "Service and Regulatory Announcements" has been inaugurated by the United States Department of Agriculture. The object is to issue periodically in convenient form full information as to rulings, decisions, instructions, etc., in the enforcement of the food and drugs act, the meat-inspection law, the insecticide and fungicide act, and the various other quarantine and regulatory provisions. The new announcements will be issued separately by each bureau or board charged with law enforcement. They will be issued monthly or less frequently as occasion warrants, and each will contain a complete statement of the regulatory activities of its bureau for the period covered by each issue.

Extracts from letters establishing important precedents, all food and drug decisions, notices of seizures and notices of judgment will be printed in Service and Regulatory Announcements of the Bureau of Chemistry.

The monthly Service Announcements heretofore issued by the Bureau of Animal Industry will be changed to conform to the new plan and will cover matters relating to the meat inspection, live-stock quarantines, and other phases of the administrative work of the bureau.

The same procedure will be followed in making public all regulatory and service announcements of the Insecticide and Fungicide Board, the Federal Horticultural Board, the Forest Service, and other branches of the department charged with quarantine or other regulatory matters.

As far as possible the free circulation of the Service and Regulatory Announcements will be limited to public officers, persons or firms who have official relations with the department, and persons whose knowledge of the contents will aid in the enforcement of the various acts. As a rule only one copy will be sent to each person. Persons not coming within the foregoing classes, or who want a large number of copies or wish to obtain notices of judgment in individual form, can subscribe for the periodicals, or purchase additional copies or large supplies from the Superintendent of Documents at the Government Printing Office, Washington, D. C.

RELATION OF SHAPE OF EAR TO YIELD OF CORN.

The superintendent of the Texas substation at Temple, after a careful study of the relation of shape of ear to yield of corn, concludes that slightly tapering parent ears give the highest yield. This is in accord with the results of experiments at the Ohio Experiment Station, in which extremely tapering ears gave slightly higher results than cylindrical ears. High yields were associated with comparatively smooth kernels of slightly more than average depth and of medium horniness. The yield increased with an increase in the total weight of the ear as determined by slight increase in length, amount of grain, and rather marked increase in weight of cob.

In experiments at the Ohio and Nebraska experiment stations it was found that the highest yields were obtained with medium to medium long ears. Poorly filled butts and tips were more frequently associated with high yields than well filled, but high yields were more frequently associated with well-filled butts than with well-filled tips. "The old score card placed much emphasis on good filling of butts and tips, but for several years past investigators have been getting away from this idea. It has been found that these characters, when highly developed, are usually so developed at the expense of more valuable characters, such as yield, constitution, etc." There appeared to be no relation between yield and shelling percentage and circumference and width or thickness of kernel.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

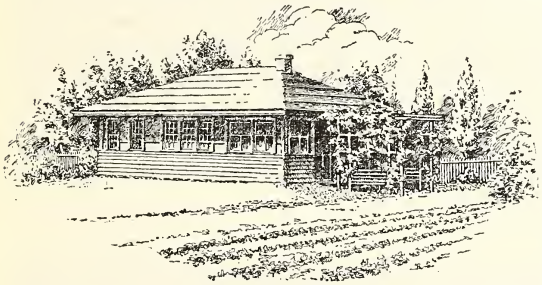
UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

Vol. I WASHINGTON, D. C., FEBRUARY 18, 1914 No. 28

SUGGESTED PLAN FOR INEXPENSIVE SMALL FARMHOUSE FOR TENANT OR OWNER.

The accompanying perspective drawing and plan for a small farmhouse especially adapted to tenants but also suitable, or suggesting improvements, for owners with small families, are the first of a series of plans for farmhouses which the department's specialists are to prepare with the idea of helping farmers to construct inexpensive and more convenient homes. The inquiry was the result of the belief that the farmhouse is the most important building on the farm and that money, if judiciously expended in its planning and construction, is well invested. In many cases investigated, it was found that existing farmhouses are inconsistent in cost with the value of the farm and the lack of improvements in them too often is in striking contract with the outbuildings and farming machinery.



The objects sought are to provide structures reasonable in cost and of good material and so arranged as to give, for the money spent, the maximum in health, comfort, and happiness to the family and added convenience to the housewife in her domestic operations.

In the suggested plan, endeavor has been made to provide good lines and pleasing proportions, which are essentials to genuine beauty in all structures and are the result of skillful designing rather than of additional material and labor.

The cost of erecting the house, the architect estimates, should be between $800 and $1,000 on farms convenient to reasonable markets for building materials and to which cost of actual delivery is not excessive. Cash outlay for construction necessarily varies considerably in different sections, owing to the differences in cost of materials and labor.

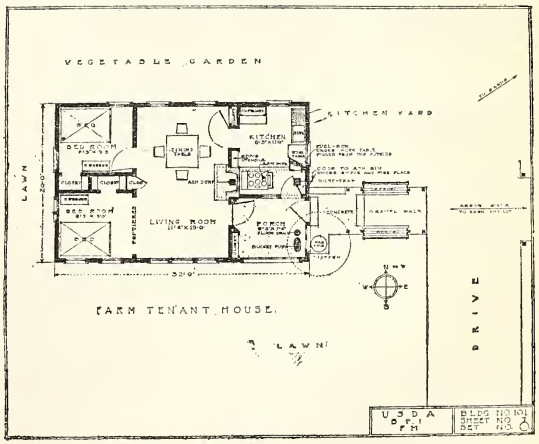
THE TENANT HOUSE.

The tenant house, as planned, is a simple, four-cornered structure, without bay windows, gables, and dormers, or any projection save the cornice, which overhangs and protects the walls and window openings. The house is planned for the smallest dimensions and the most inexpensive arrangement consistent with the needs and the convenience of a small family. It has but one chimney and but one outside entrance.

THE SINGLE DOOR.

The home has but one entrance, which would be insufficient in a town house and it may be in this one; but another door can be gotten into the plan only by a sacrifice of wall and floor space, which can not be spared, or by increasing the size and cost of the house, which in connection with this problem can not be done. If a door is substituted for one of the three windows in the south end of the living room, the best part of the room will be ruined. Moving the entrance door to the south side of the porch would not only restrict the uses of the porch, but necessitate an outside door in the kitchen, which, in turn, would necessitate a corresponding increase in the floor and wall space of the kitchen. If the door that opens from living room to porch were moved farther from the fireplace, valuable floor and wall space in both room and porch would be sacrificed.

These little details affect the size of rooms and of the building, and therefore the cost. They are sometimes, and of necessity, influenced more by economy than by convenience; but by careful study they may often be made consistent with both. It is economical, for instance, to have but one outside entrance to this house. With this entrance nearest the barns and the



entrance from the highway and treated as it is with the simple and inexpensive pergola and benches, which separate the lawn and the back yard, it should serve every purpose of a front door and as well, also, a kitchen door. In many 10 and 12 room farmhouses with three or four outside doors only one door is much used, and that one is either in or near the kitchen.

Notwithstanding the simplicity and the playhouse appearance of the building suggested by the department, it provides more usable space for the daily activities of the family than many larger houses. It is more convenient for a small family, more comfortable, healthful, and delightful than many farmhouses costing twice as much.

THE KITCHEN.

Very few residences of any size or cost have a kitchen more pleasantly located, better lighted and ventilated, and more conveniently arranged than this little four-room house. It is brightened by the morning sun, cooled by the southern breezes, and shielded from the intense heat of summer afternoons. It commands a view of the garden, the playgrounds, the barns, the lawn, the gate, and the highway. It opens onto a screened porch, which in summer is the most livable nook in the house. Much of the kitchen work may be done there away from the fumes and the heat of the stove, which, happily for the other rooms of the house, blow out through the north and east windows.

LOCATION OF STOVE AND ASH BIN.

The stove is well lighted and, with the porch window closed, it is out of the cross drafts of air. It is within 6 feet of the most distant fixture in the kitchen and but little farther from the dining table. All stove utensils are within reach and the worktable and the fuel in the box beneath it are but two steps away. The ashes drop from the fire box of the stove, through a short pipe, to the ash bin beneath the concrete floor.

The walls of this underfloor bin are shown on the plans by dotted lines. The bin is under the stove and fireplace and extends to the outer foundation wall of the kitchen, where the ashes and floor sweepings are removed by means of a long-handle drag. If the building is raised on a front terrace, as shown in figure 2, the bin will be 26 inches deep, with its floor at ground level. With a cellar under the kitchen, the bin need be extended only to the front end of the stove. It will be deep enough to hold a year's supply of ashes.

The fuel box, supporting the table top, occupies space which might otherwise be wasted. It is filled from the outside of the house and emptied from the inside through a small door over the concrete floor.

A trap or dump, like that in the fireplace, is provided for floor sweepings and possible dust from the door of the coal or wood box. It is in the concrete floor, behind the kitchen door, near the fuel-box opening and over the ash bin.

The carrying of fuel and ashes is thus eliminated from the woman's work, provided the man or boy fills the coal or wood box each week, or as may be necessary, and empties the ash bin two or three times a year.

The water problem also has been carefully considered in this little plan. Cistern water may be drawn from the bucket pump on the porch or, if desired, from a pitcher pump at the sink. Hot water is heated and stored in the reservoir of the stove. The sink, with only the drainpipe to be provided, is too inexpensive to omit from any kitchen, and space enough has been saved in this plan more than to pay for all such conveniences.

This little kitchen excels many others in not being a thoroughfare to other rooms. The men and boys will wash on the porch, leave their hats and raincoats there, and enter the living room without disturbing the kitchen workers.

THE PORCH.

The screened porch is as large as the plan will permit; but too small for all the purposes for which it will be in demand. Besides the usual kitchen work, the ironing and perhaps the clothes washing will be done there. The one screen door locks up the house, and and butter, meat, and milk put on the porch to cool at night will be secure against dogs and cats. The porch will be in demand also as a dining porch, sitting porch, sleeping porch, and playroom. Its uses and the comfort of the house in winter may still further be increased by putting in porch sash and a solid door.

THE LIVING ROOM.

The living room is large enough for the longest dining table that harvest days will ever require and, with its two routes to the kitchen, it is unusually convenient for feeding a large number of workmen. With triple windows on the south and two on the north, a screened porch on the east, and an alcove bedroom on the west, it is as pleasant a dining and sitting room as a $5,000 house can afford, and with a glowing fire in the hearth, it may be as comfortable and as cheerful in winter as a steam-heated mansion.

EDUCATION AND BUSINESS METHODS COUNT IN SUCCESSFUL FARMING.

Farmers with a high-school education make nearly double the average income of those with a mere common-school education, according to the results of a series of investigations in the corn belt just published in Bulletin No. 41, A Farm Management Survey of Three Representative Areas in Indiana, Illinois, and Iowa.

This investigation seems to show that many farmers who have a little schooling succeed but that these same men would do better if they had had an opportunity to get further training.

The following table in the bulletin shows the relation of the owner's and the tenant's education to his income on the farms investigated:

Education.	Operated by owners (273 farms).				
	Number of farms.	Average size (acres).	Average capital.	Average labor income.	Average age.
None at school	4	91	$15,039	$586	55
Common school	214	165	27,494	301	51
High school	46	206	37,725	651	46
College, etc	9	240	42,781	796	53
Total or average	273	178	30,606	408	49.8

Education.	Operated by tenants (247 farms).				
	Number of farms.	Average size (acres).	Average capital.	Average labor income.	Average age.
None at school	4	118	$1,650	$680	40
Common school	186	167	2,200	742	38
High school	51	190	3,203	1,268	33
College, etc	6	294	3,351	1,721	41
Total or average	247	172	2,431	870	37

There were only eight men, four owners and four tenants, who never had a school training. Of the owners and tenants 77 per cent attended a common or district school. About 18 per cent attended a high school, and one out of every 35 went to college or to some institution of similar grade.

On the whole the tenants had received more education than the owners, 23 per cent of them having more than a district-school education, while only 20 per cent of the the owners had such training. Those men having the best training made the largest incomes, although they were materially helped in doing this by much larger farms and greater capital.

Investigation also seems to establish that those who start earliest to farm make the most profits. The farmers who have made small fortunes in a short time usually have done so through a phenomenal rise in land values.

Wages are a reward for labor, and if a farm does not provide work the pay must be correspondingly small. The family-size farm, which in the corn belt should be above 100 acres, is unquestionably a more efficient unit than an area of 40 acres or less. Crops can be grown cheaper, labor will be better paid, and the farmer and his family will enjoy more of the benefits of modern civilization.

NEW IDEA IN FARMERS' BULLETINS.

Each Bulletin and List of Publications to Show the Exact Class of Readers for which the Issue is Intended and the States to which the Information Contained is Directly Applicable.

The Department of Agriculture has taken a lesson from the commercial book publishers and hereafter will announce its publications in such a way that the public will know at once whether it is a bulletin designed for popular reading or information for professional use or of service only to a special class of manufacturers or to a specific geographical section. Heretofore the brief titles used in the Monthly List of Publications and on the bulletins themselves, it has been found, were misleading to many people. As a result lay readers would ask for bulletins that could be of service only to skilled veterinarians or scientists or would write from the West for a bulletin dealing with practical matters but in a way applicable only to certain sections in the South or East. In other cases farmers would write for bulletins designed wholly for manufacturers or shippers, or technical workers would request material intended wholly for popular reading. As a result of this system of titles the recipients of bulletins in many cases were disappointed and either found the bulletins too technical for use or else entirely inapplicable to the section in which they were engaged in agriculture.

To avoid this waste of circulation and make certain that the bulletins go directly to those to whom they will be of service, the department has inaugurated a new plan whereby in every list the title of the bulletin will be accompanied by a brief statement telling accurately the nature of its material, the class of reader for which intended, and the section of the country to which the information is applicable. To make doubly sure that each recipient of a bulletin will understand clearly the class of reader for which it is intended, this brief description will be repeated at the foot of the title page of each publication.

The list printed below, taken from the last list of publications, shows the new system of explaining the subject matter. These publications can be obtained free on application to the Editor and Chief, Division of Publications, United States Department of Agriculture, Washington, D. C., as long as the department's supply lasts. Thereafter they may be obtained from the superintendent of documents, if the request is accompanied by the price stated:

The Fish-Scrap Fertilizer Industry of the Atlantic Coast. 50 pages and 6 illustrations. Price, 10 cents.

Of especial value to manufacturers of fertilizers, but also has matter of general interest to farmers who use fertilizers containing fish scrap.

An Economic Study of Acacias. 38 pages, 11 illustrations. Price, 10 cents.

Discusses the economic importance of certain acacias with the idea of bringing about a wider planting, but also contains cautions as to planting on a commercial scale.

Management of Sheep on the Farm. 52 pages, 19 illustrations. Price, 10 cents.

A popular article of interest to farmers everywhere, treating of the raising of sheep on farms (not the western ranges), showing how to establish a flock, size of flock, how to care for it, the feed and its production, shearing and care of the wool, cost of maintenance per head, and value of sheep as soil improvers and weed destroyers. Thousands of farms which now raise no sheep and many others where the size of the flock should be increased would show an added profit to the farmer if sheep raising was made a prominent factor in their management.

Shrinkage in Weight of Beef Cattle in Transit. 78 pages. Price, 10 cents.

Deals with loss in weight of beef cattle, and is of interest to shippers and traders in market cattle in that it supplies data to be used as an equitable basis for adjusting claims.

American Medicinal Flowers, Fruits, and Seeds. 16 pages. 12 illustrations. Price, 5 cents.

Describes 14 medicinal flowers, fruits, and seeds, tells where they grow, and supplies information about collection, prices, and the uses of these plants. Of interest to collectors, growers, and drug dealers.

American-grown Paprika Pepper. 24 pages. 11 illustrations. Price, 5 cents.

This bulletin, which tells how to cure the crop, is of special interest to farmers of the South Atlantic and Gulf States or other localities with a long growing season and ample and well-distributed rainfall.

Bean Growing in Eastern Washington and Oregon and Northern Idaho. 12 pages and 5 illustrations.

Of special interest to farmers in the territories named.

The Organization of Boys' and Girls' Poultry Clubs. 12 pages. 6 illustrations.

This bulletin is of interest to all who wish to encourage young people to take an interest in poultry.

BOYS TAUGHT TO BREED GOOD HOGS.

The Department of Agriculture is endeavoring to interest boys between 10 and 18 years on southern farms in the breeding of good hogs. It is the object of the department to encourage the young men to raise at least enough pork for home consumption, and, if possible, a surplus for the market. Pork can be marketed in many forms—fresh pork, hams, bacon, and sausage—and can be produced so as to sell much cheaper than beef. A shortage of beef means an increased demand for pork, and it seems reasonable that there should be a ready demand for all the available supply. This means money in the pocket of the boy hog raiser.

Some of the points which the department advises the youthful hog grower to bear in mind are the following:

1. The feeding and care are as important as the breeding in producing a good hog. Plenty of feed and good care may make a good hog out of a runt, but lack of it will always make a runt out of a good pig.
2. To make pork cheaply a permanent pasture and forage crops must be used.
3. Young pigs must have a dry bed and plenty of sunshine.
4. Begin feeding the pig as soon as he will eat, and keep him growing until he is mature.
5. Always keep plenty of clean, fresh water where the hogs may drink at any time.
6. Quarantine all newly purchased animals for three weeks.
7. Never keep a female for a brood sow, no matter how well bred she may be, if she will not produce more than four strong pigs at a litter.
8. The more milk a sow will give the faster her pigs will grow.
9. Lice prevent a hog from doing well.
10. Always keep a mixture of charcoal, wood ashes, lime, sulphur, salt, and copperas before the hogs.

These points are emphasized in a bulletin just issued by the Bureau of Animal Industry, entitled "Boys' Pig Clubs, with special reference to their organization in the South." It can be had free by the young farmer by application to the department. It contains a number of illustrations, a design of a portable hog house, which can be built easily and cheaply, and a design of feeding pen for small pigs.

In the pamphlet are some very important "don'ts" which should aid the young farmer in preventing the dangerous disease of hog cholera. Here are the suggestions:

Do not have hog lots next to highways, railroads, or streams. If your neighbor's hogs have cholera do not allow anyone from his farm to visit your farm, and especially your hog lot or pens, and keep away from your neighbor's hog lot, whether his hogs have cholera or not.

Do not keep pigeons or allow them to alight on your premises.

Keep away crows and buzzards.

Quarantine all new hogs brought to your place until you are sure they are free of disease.

Do not allow a patent-medicine man on your place, for you do not know how recently he has visited a sick herd.

Disinfect your wagon and your own shoes and clothes after hauling hogs to stockyards or railroad loading pens.

Avoid every possible way of carrying infection to your hogs.

"An ounce of prevention is worth a pound of cure" is an old saying, but in this case it is everything.

A not unimportant detail of the work to the boys themselves is the money which they are enabled to earn by marketing their product. They also come to realize sooner or later that farm life has its interesting side, and that success in the farming business is well worth while.

HOW FARMERS CAN TEACH AGRICULTURAL SCIENTISTS.

It is not enough that the county agent be simply a "common carrier of ideas" from farmer to farmer. He is to be a go-between to gather facts and experiences everywhere and to interpret these facts and experiences in the light of local conditions and needs. Then he is to go a step farther and carry the experience and the ideas of the farmers themselves to the Department of Agriculture and the agricultural colleges; for these institutions are as much in need of the farmer's wisdom and an accurate knowledge of the farmer's problems as the farmer is in need of the information which agricultural institutions can give.

Active and mutually helpful cooperation is needed between the farmers themselves and all of the public agencies intended to promote agriculture and agricultural education. The farmer needs the facts and the explanations which the scientists can furnish. The scientists and teachers are no less in need of the facts and the point of view of the farmers; they need to learn the superscience which farmers call common sense, that wholesome wisdom that is the essence of the thought and experience of generations of men who have made good through work and thought and thrift and unconscious adaptation to circumstances.

In nearly every county it will be found that most of the serious agricultural problems have been solved by several of the good farmers. There is no better way of teaching a scientific truth than by calling attention to some one who is successfully practicing it. It will often be found that the successful farmer has not stopped to analyze the cause of his success and may often attribute it to the wrong factor. The lesson is there just the same.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., FEBRUARY 25, 1914 No. 29

A BILL TO ESTABLISH NATIONAL FARM-LAND BANKS.

Brief Summary of the Provisions of the House of Representatives Bill No. 12585 and Senate 4246.

The President of the United States, under the appropriation act of the Department of Agriculture for 1914, appointed a commission to investigate in Europe cooperative land-mortgage banks, cooperative rural-credit unions, and similar organizations and institutions which promote agriculture.

The President named as the members of this commission:

United States Senator Duncan U. Fletcher, of Florida.
United States Senator Thomas P. Gore, of Oklahoma.
Congressman Ralph W. Moss, of Indiana.
Col. Harvie Jordan, planter, of Atlanta, Ga.
Dr. John Lee Coulter, agricultural expert of the Census Bureau, Washington, D. C.
Dr. Kenyon L. Butterfield, president of the Massachusetts Agricultural College, Amherst, Mass.
Dr. Clarence J. Owens, managing director of the Southern Commercial Congress, Washington, D. C.

The commission organized by making Senator Fletcher chairman, Congressman Moss vice chairman, and Dr. Coulter secretary.

Members of the commission studied institutions in Italy, Hungary, Austria, Russia, Germany, Denmark, Belgium, Holland, France, England, Wales, Scotland, and Ireland.

This commission on January 28, 1914, rendered a report on agricultural credit, land-mortgage or long-term credit, printed as Senate Document No. 380, Parts I and II.

Introduction of Bill.

Following the publication of this report, a bill to establish farm-land banks was introduced in the House of Representatives by Mr. Moss (H. R. 12585, 63d Cong., 2d sess.), and in the Senate by Mr. Fletcher (S. 4246). The bill was referred to the Committee on Banking and Currency and ordered printed. Following is a condensed statement of the principal features of the bill, together with certain brief explanations of the meaning of some of its provisions. The explanations have been taken largely from H. R. Document 679 entitled "Interpretation of H. R. 12585, a bill to establish national farm-land banks —."

Purpose of the Bill.

The purpose of the bill is to encourage agriculture by enabling farmers to borrow money on first mortgages or first deeds of trust on their farm lands for any of the following purposes: (*a*) To complete the purchase of the agricultural lands mortgaged: (*b*) to improve and to equip such lands for agricultural purposes; (*c*) to pay and discharge debts secured by mortgages or deeds of trust on said lands.

This the bill seeks to accomplish by establishing farm-land banks which will lend money on long-term mortgages at reasonable rates of interest and without excessive cash payments for drawing of legal papers or registration of mortgages. These mortgages, the bill requires, shall contain a provision for the amortization (discharge) of the loan or reduction of the same by such annual or semiannual payments on account of principal as will retire the mortgage at its expiration.

All mortgages extending over a period exceeding five years must also contain a provision permitting the borrower, after such loan has continued for five years, to pay off the loan in whole or in part at any interest period.

The Farm-Land Banks.

The bill provides for the establishment of two kinds of farm-land banks: (1) National farm-land banks; and (2) national farm-land banks cooperative. In the ordinary banks the shares of stock must be $100, and each share of stock carries one vote. In the cooperative banks the shares may be $25, and each stockholder has but one vote irrespective of the number of shares he holds. In the case of the cooperative banks no single stockholder can hold more than 10 per cent of the capital stock, and the method of declaring dividends and sharing profits with borrowers is fully defined by the bill. In addition cooperative banks are permitted to transact for their stockholders the business now possessed and exercised by national banks. The farm-land banks of both sorts will have succession for a period of 50 years from organization unless sooner dissolved in accordance with law.

These banks, when requested, must act as fiscal agents of the United States and become depositories for postal savings and other governmental funds. All these banks are subject to regular examination by examiners designated by the commissioner of farm-land banks and to certain control by fiduciary agents.

All banks before commencing operations must file certificates with the commissioner of farm-land banks, comply fully with the provisions of the bill, and also with such regulations as the commissioner of farm-land banks, with the approval of the Secretary of the Treasury, shall establish.

The bill makes provision whereby land-mortgage associations, corporations, building and loan associations, savings and loan associations, and similar institutions lending exclusively on farm mortgages, may be, without interruption of business, converted into national farm-land banks.

Capital Required for Farm-Land Banks.

The bill permits the establishment of national farm-land banks by any group of not less than 10 people who will provide a capital of not less than $10,000 and comply with the law and rules of the commissioner of farm-land banks. Half of this capital may be paid in and the remainder paid in 10 per cent monthly installments. Capital may be increased or reduced with the approval of the commissioner of farm-land banks, but may not be below the minimum of $10,000.

Each bank must have not less than five nor more than nine directors, each of whom is a citizen of the United States and an owner of not less than five unencumbered shares of capital stock. Three-fourths of the directors of any bank must be actual residents of the State in which it is located and must continue to be residents during their directorships. Each bank has the right to appoint and dismiss its officers and establish by-laws. Each bank must provide for a Federal fiduciary agent on the designation of the commissioner of farm-land banks. This agent must not be an officer or director of the bank, and is not removable by the bank. This fiduciary agent must certify and sign all bonds issued by the bank, must have joint possession and control of all mortgages and deeds of trust of the bank deposited as security for its bonds, and must have supervisory control of all entries in the mortgage ledger kept by the bank.

Powers of Farm-Land Banks.

The farm-land bank having raised its capital, secured its certificate from the commissioner of farm-land banks, and organized, has the following powers:

1. To accept and pay interest on deposits to an amount not exceeding 50 per centum of its combined paid-up capital and surplus. In addition, these banks can receive deposits of postal savings funds provided the bank deposits its bonds to the full amount as security. On its time deposits and postal savings and other Government deposits the bank must maintain a reserve of at least 5 per cent, and on all check deposits a reserve of at least 12 per cent, either in cash or in balances with other banks, under rules and regulations to be prescribed by the commissioner.

2. To buy and sell gold and silver coin and bullion; collect notes, drafts, and bills of exchange; discount commercial and other short-term paper, and deal in national land-bank bonds of other farm-land banks with its deposits; to keep reciprocal accounts with other banks; to rediscount its commercial and other short-term paper with other banks; to carry on a general banking business so far as its current deposits are concerned. Farm-land banks cooperative may, in addition, for and with their stockholders, transact business now exercised by national banks.

No bank is permitted under any circumstances to lend to any single borrower an amount in excess of one-fifth of its actual paid-up capital and surplus.

All banks are specifically prohibited from investing permanently in real estate except for their own business uses, and are permitted to hold only for not more than five years any land which they buy to protect mortgages or take in foreclosure or in discharge of debts.

3. (*a*) To use their capital stock, surplus, and deposits as a revolving fund for the temporary purchase or holding of first mortgage or first deed of trust farm loans. These mortgages or trusts can then be sold to outside investors or in the case of those that run for 5 years up to 35 years can be made security for the issue of bonds.

(*b*) To use the same for the purpose of buying in its national farm-land bank bonds and holding them temporarily.

(*c*) To loan its capital and surplus on first mortgages or first deeds of trust for a period not exceeding five years. The bank, however, may not invest more than 50 per cent of its capital and surplus permanently in mortgages or its own bonds, and the balance of its capital and surplus can be permanently invested only in United States bonds, bonds of the State where the bank operates, or in other securities authorized by the commissioner.

Conditions Upon Which Loans Can Be Made.

4. To make loans upon farm lands within its own State provided that:

(*a*) Such loans are for not more than 35 years.

(*b*) Secured by first mortgage or first deed of trust on farm lands.

(*c*) Such loans are made for the encouragement of agriculture in the ways specified heretofore.

(*d*) Such loans are for not more than 50 per cent of the value in the case of improved farm lands and not more than 40 per cent in other cases.

Destructible buildings or property shall not be valued at more than 20 per cent of the total appraisement and shall be insured. The appraisement of property must be made by a committee of three directors.

RATE OF INTEREST CONTROLLED, BUT NOT FIXED.

The bill does not prescribe any definite interest rate to be charged on mortgages and the rate will vary according to the prevailing rate in the several sections of the country and in accordance with natural competition for first-mortgage investment. The bank's profits on mortgages and its expenses of administration, however, are definitely limited by the bill. The

bank may not charge a rate on its mortgages more than 1 per cent above the interest rate that it pays on the bonds hereafter described and which are the chief sources of the bank's money for long-term mortgage loans. This 1 per cent must provide all expenses of administration and the bank's profits on the long-term mortgage and bond operations. Its other profits must come from its banking operations and mortgage loans of less than five years made from its actual cash capital, surplus, and deposits.

NATURE OF LONG-TERM MORTGAGES.

Every farm-land first mortgage or first deed of trust running for not less than five years must contain a mandatory provision whereby the payments to be made annually or semiannually by the borrower shall be sufficient to pay the interest charge upon the loan, the administrative charges of the bank, and an amortization (discharge) payment sufficient to retire and pay off the amount of the principal borrowed at its maturity. The commissioner of farm-land banks is authorized and required to publish tables of amortization which shall be included in all long-term mortgages.

Provision also must be made in every mortgage whereby the loan may be paid off in whole or in part by the borrower at any interest period after such loan has continued for five years.

Moreover, any borrower who wishes to make such a payment in discharge of the loan can, if he prefers, buy one of the farm-land bank bonds of the same issue, described below, and offer this to the bank, which must receive it at par as a payment toward the mortgage. This means that if by any chance these bonds are selling below par on the market the farmer can buy them at the market rate and use them at their full face value in paying his debt.

BANK MUST PROMPTLY DISCHARGE LIEN.

The bill requires that whenever the borrower pays his debt in full the bank shall promptly satisfy and discharge the lien of record.

RIGHT TO ISSUE BONDS.

Against all long-term first mortgages and deeds of trust—that is, those due not earlier than five years after their dates—each farm-land bank may issue and sell its own collateral trust bonds, to be known as national farm-land bank bonds, to an amount equal to the face value of its first mortgages and deeds of trust. The bank can continue to loan money on mortgage security and issue these bonds up to 15 times its combined capital and surplus. Provision is made for the control by the commissioner of farm-land banks of mortgages held as security for national farm-land bank bonds and for postal savings funds. These bonds must be payable on a date specified, and the bank has the right to call them in at par at any interest period after the date of issue on giving proper notice. As these bonds must always be protected by the deposit of at least an equal face value of long-term first mortgages (or notes or bonds secured thereby) which mature not less than five years after their date, as rapidly as mortgages are retired or partial payments made on them, the bank must call in at par an equal amount of bonds of the same issue or purchase in the market. These bonds must pay an interest not less by more than 1 per cent than the rate of interest the bank charges on the long-term mortgages securing the particular issue of bonds.

What the Borrower Would Have to Pay.

If a farm-land bank can sell its bonds paying 4 per cent interest at par, the farmer who wishes to borrow $1,000 on long-term mortgage from that bank can be charged interest at 4 per cent (the amount of interest paid on the bonds), plus not more than 1 per cent to cover charges of administration and the profits of the bank. His interest charge then would be not more than 5 per cent. In addition, however, the bank must charge, in accordance with the amortization tables published by the commissioner of farm-land banks, an annual or semiannual amount which will be sufficient to retire the loan at maturity. For example, if the loan of $1,000 was to run for 30 years the bank would have to charge for amortization about 1 per cent per year, which would be sufficient to pay off the principal by the end of 30 years. This would make the farmer's annual payment for interest, administration, and retirement of his mortgage not more than about 6 per cent. He would, therefore, pay $30 every six months, or $60 every year. After he had paid his first $60 the face of his mortgage would be reduced by about $10, or to $990. His subsequent interest and amortization payments, however, would continue to be charged on the basis of $1,000, the original face of the mortgage. His entire payment toward amortization would be credited to the loan, and in addition all money paid for interest over and above the interest actually due on the remaining unpaid capital of the mortgage would also be credited toward the discharge of his debt.

In this way while the amount he pays per year remains stationary until the mortgage is discharged, more and more of each semiannual or annual payment goes toward the discharge of the debt.

In case the borrower should decide at any interest date to make an additional payment either in money or in the form of a bank bond of the same issue, he thereby reduces the amount of his indebtedness but does not change the rate of payment for interest and amortization. For example, if the borrower of the $1,000 paid off $500 of his mortgage, he would continue to pay $60 a year, but a much larger portion of this $60 would go toward the reduction of his debt and, consequently, the mortgage would be retired much sooner.

In discharging a part of his loan, he can turn in land-bank bonds of the same issue at par. For example, if he can buy a $100 bond for $98, he can turn it in as $100 and thus make $2.

In all these computations, the amortization tables published by the commissioner of farm-land banks will govern. These tables must be part of the mortgage agreement, so that at all times the borrower can tell exactly how much he has paid toward capital and what balance is due, and when the debt will be discharged under his current rate of semiannual or annual payments.

National Farm-Land Bonds to be Legal Security Under Certain State Regulations.

To protect any farm-land bank from having to pay more than par for the bonds it will need to call in because of the retirement of long-term mortgages, the bill empowers each bank to call in, after due notice, and buy at par its own bonds.

To provide a steady market for these bonds and to prevent any important fluctuations below par, the bill provides four measures, as follows:

1. Each bank may use its capital, surplus, and unreserved deposits for the purchase and temporary holding of its own bonds.
2. Any borrower may buy these bonds on the market and use them at their full par value in discharge of his indebtedness.
3. Other farm-land banks may buy these bonds.
4. These bonds, under certain conditions as to State laws and certain reciprocal action by the States, can become legal security for various forms of investment controlled by law.

Before farm-land bank bonds can be accepted as legal security for certain investments controlled by law, the commissioner of farm-land banks must satisfy himself that the State in which the bank is located has enacted certain laws, and has entered into certain reciprocal agreements with relation to these bonds. He then can grant, with the approval of the Secretary of the Treasury, to the banks within that State the privilege of having their bonds available for some or all of the following purposes:

1. As security for the deposit of postal-savings funds in such national farm-land banks and all other banks authorized to receive such deposits.
2. As a legal investment for time deposits of national banking associations.
3. As a legal investment for trust funds in States under any of the courts of the United States.
4. As security for loans from national banking associations or to individuals, for not exceeding five years, and to an amount aggregating not over 25 per cent of the capital and surplus, or to one-third of the time deposits of the national banking association making such loan. (This permits national banking associations to lend to national farm-land banks, in place of making the loan directly on farm lands.)

WHAT THE STATES MUST DO.

The conditions prescribed by the bill, which the States must fulfill before the bonds of their farm-land banks can obtain the privileges outlined above are as follows:

(*a*) That the State laws provide sufficiently for the canceling of the right to claim exemption or for waiver of such exemption whether homestead or otherwise. In the case where the right to waive exemption is given, the mortgages given as security for the bonds must contain such waiver.

(*b*) That the State laws provide properly for registration of land titles, conveyances, and foreclosures, so as to give reasonable protection to the holders of mortgages.

(*c*) That the State laws accept the national land-bank bonds of all national farm-land banks which are accepted as security under this bill as being a legal investment for the funds of savings banks, trust funds in the State, or reserves of insurance companies operating under the laws of that State.

Farm-Land Bank Bonds Exempted from Taxation.

The bill provides, in section 18: That every national farm-land bank incorporated under the terms of this act and the capital stock and surplus therein and the income derived therefrom and the mortgages and deeds of trust (and the notes and bonds secured thereby) held by said bank and the national land-bank bonds issued by the same shall be exempt from Federal, State, and local taxation, except in respect to taxes upon real estate.

How Dividends Are Regulated.

The law prohibits the payment of any dividends that will impair the capital stock or which will reduce the amount of capital and surplus of the bank to less than one-fifteenth of its outstanding national land-bank bonds. It also requires each bank to maintain a special reserve fund out of its net earnings which shall at all times be equal to 5 per centum of the total annual interest charge on its land-bank bonds which are outstanding at the close of the fiscal year. This special reserve fund is not to be disbursed for any other purpose except to meet arrears in interest payments on land-bank bonds.

HOW THE COOPERATIVE LAND BANK'S PROFITS ARE DIVIDED.

In the case of the cooperative land banks, the bill specifically prescribes the manner in which the net earnings remaining after running expenses, cost of administration, surplus, and required reserves are provided for, shall be distributed. This section permits in the case of cooperative banks the distribution of excess earnings to borrowers. The language of the bill is: "The net earnings of such banking corporation

available and set aside for the payment of interest and dividends shall be distributed as follows: To each owner of stock of such corporation may first be paid a dividend in the form of interest upon the par value of the shares of stock owned by such owner of stock, computed at the rate of interest generally prevailing in the community where such bank is located, but not exceeding the legal rate of interest in the State where such banking corporation is situated, if said earnings are sufficient for that purpose; otherwise, to be paid to each owner of such stock pro rata, computed upon the par value of such stock. The balance of such net earnings, if any, shall be distributed among the patrons of such banking corporation in proportion to the amount of business transacted with such bank: *Provided, however,* That in such distribution the share-owning patrons may, if approved by a two-thirds vote, take dividends at a rate twice as great as that paid to the non-share-owning patrons."

Practical Example of the Working of a Cooperative Farm-Land Bank.

We will suppose that 400 farmers or other persons decided to establish a national farm-land bank, cooperative, with a capital of $10,000. They must comply with the law and Federal rules and secure authorization from the commissioner of farm-land banks. They must, before beginning business, organize and appoint, on nomination of the commissioner, a Federal fiduciary agent, who controls for the Government all mortgage and bond operations. The operations of the bank are also subject to Federal examination at all times. Complete reports must be filed regularly with the commission. This provides for much the same supervision of these banks as the Federal Government exercises over national banks.

Each of these farmers would take one share, at $25. Tenants and managers, or other persons, could join in with the farm owners, as there is no property requirement of stockholders. Each member would be required to pay at once $12.50, or half the par value of his share before business could be undertaken, because at least half the capital must be paid in to do business. Thereafter each member would be required to pay not less than $2.50 each month for the following five months to finish paying for his $25 share and to complete the capital stock of $10,000. Of course, there is nothing to prevent any stockholder from paying in full for his stock at once.

The bank might begin business immediately, after securing the necessary certificate of organization, with only $5,000 in cash on hand and, so far as its own members are concerned, could do a regular banking business, as prescribed under the national banking act.

When its capital of $10,000 was fully paid in, it could receive general deposits up to $5,000. Against such of these deposits as were time deposits it would have to set aside a reserve of 5 per cent, and against checking accounts it would have to set aside a reserve of 12 per cent in cash.

The bank could then use practically the whole of its $10,000 and any surplus it might accumulate and the unreserved portion of its deposits for dealing in short-term first mortgages on farm lands, provided these mortgages did not run over five years.

The bank then might sell these mortgages to outside investors and reinvest its money in new mortgages. The average mortgage loan made by farmers is $1,750. If 100 farmers should negotiate loans of this character with the bank, and the bank could succeed in finding outside purchasers enough, the total business in short-term loans would be $175,000. If the bank made 1 per cent on the face value of these loans for handling and selling the same, its income from this source would be $1,750. The bank would probably also make other profits from its regular banking business and short-term loans on commercial paper.

LONG-TIME LOANS.

In addition to the short-time business, however, the bank would loan money on long-term mortgages, that is, running from 6 to 35 years. It may not, however, invest more than one-half of its paid-up capital and surplus permanently in these long-term mortgages. The bank, therefore, would use its cash capital and surplus and unreserved portion of its deposits for the temporary negotiation of long-term mortgages. This bank, for example, negotiates long-term first-mortgage loans amounting to $10,000. It then could sell immediately a series of its land-bank bonds amounting to $10,000. The money obtained from these bonds it could then use to negotiate another $10,000 of mortgages, against which it could issue a second series of bonds; and continue this operation until it has sold bonds to not more than 15 times its capital, or in this case not more than $150,000. As the bank can not charge more than 1 per cent on its long-term mortgages than it pays on its bonds, its total income from this source would be $1,500. To this would be added the $1,750 made from the sale of short-term mortgages, making a total of $3,250. To this $3,250 would be added whatever profits the bank made from lending money on commercial paper from holding short-term mortgages, or approved bonds from interest on its reserves and deposits with other banks, and from its general banking operations.

SPECIAL RESERVE TO MEET INTEREST PAYMENTS ON BONDS.

We will suppose that the interest on the bonds is 5 per cent. On each $100,000 of bonds issued, therefore, the yearly interest to be paid by the bank would be $5,000. As a reserve to insure the payment of this interest and to protect the bank from default in payment of this interest on the part of borrowers on

mortgages, it would have to accumulate a special reserve of $250 or 5 per cent.

So much of the profits as remain as net earnings after all expenses of doing business and administration have been met, the reserve to protect the interest on bonds set aside, and such sums set aside for surplus as the directors deem necessary may be divided among the shareholders and patrons of the cooperative bank in accordance with the system described above.

AGRICULTURAL SCHOLARSHIPS INSTEAD OF TRIPS TO WASHINGTON.

United States Department of Agriculture Recommends the Former as the More Valuable Prize for Youthful Members of the Agricultural Clubs.

The Department of Agriculture recommends that in place of a trip to Washington the young prize-winners of the corn, canning, and poultry, and other agricultural clubs be given a year's course in practical training at some agricultural college. In case the young champion's academic training would not enable him to enter the agricultural college of his State, a more elementary course in a school where agriculture is taught or a course in an agricultural high school are recommended.

The department considers that such courses would have considerably more lasting value for prize winners and for the agriculture of their sections than flying trips to the Capital. The State and local organizations which have been paying for these trips have been sincerely interested in developing a true appreciation of farming as a business among the boy and girl farmers. Some of these have already considered this question and have decided on the agricultural course as the more desirable prize.

One of the first persons to raise the question as to whether the practical training or the more spectacular trip was preferable was Willie P. Brown, an Arkansas corn-club prize winner. Given his choice of all the prizes offered by the State, including the trip to Washington, he selected a scholarship giving him a year's tuition in an agricultural school. This gave impetus to the idea in Arkansas, and now the biggest annual prize offered the corn-club boys is a scholarship given by the bankers association. The same association gives a similar scholarship to the girl champions of the canning clubs.

Other suggestions regarding prizes have been made from time to time by those who have been most interested in these clubs and understand the needs of the boy and girl farmers. Some of these suggestions are offered herewith for the consideration of others who might care to profit by them.

TWO WEEKS' COURSES FOR COUNTY PRIZES.

While a year's course with all expenses paid is the suggestion of the department for the biggest prize for State winners, less extensive courses might be offered to county winners. It has been suggested that such counties as care to give prizes, give one or more short courses in the State agricultural and mechanical colleges to the fortunate county champions. These courses are usually only two weeks long and are held in winter or in summer. The training given is of the most practical sort and the amount of time spent is no gauge of the amount of benefit to be obtained. These short courses have already been given as prizes by certain counties and have proved most valuable to the young people.

LARGE CASH PRIZES NOT ENCOURAGED.

Large cash prizes are not to be encouraged, according to those who have worked with the young contestants. Better suggestions are as follows:

A pair of registered pigs.
A pair of full-blooded chickens.
A fine colt.
A registered calf.
An up-to-date corn planter.
A two-horse wagon.
A gold watch.
Books on agriculture.
A double-barreled shotgun.
A first-class bicycle.
A ton of good fertilizer.
A $5 hat.
A fireless cooker (for girl winners).

MORE PRIZES MAKE MORE CONTESTANTS.

In general it is better to offer many small prizes than a few large ones. If 20 boys try for a prize and only one is fortunate, some of the 19 unsuccessful contestants will probably be too discouraged to try again. But if 5 of the boys are rewarded for their efforts, more merit will have received recognition and the remaining 15 will see more possible opportunities of success the following year.

Some boards of trade and chambers of commerce have also recognized the efforts of the clubs, by giving banquets for the young people and entertaining them with street car and automobile rides. On other occasions clubs have been honored by an invitation to march in parades, where they have attracted deserved attention.

A TRIP TO THE STATE FAIR.

From Memphis, Tenn., comes an interesting story which is a sample of what has been done in other States for young prize winners. In the three States (Arkansas, Tennessee, and Mississippi), which are annually represented at the Memphis Tristate Fair, it was decided to send certain boy prize winners to the fair as a reward for their excellence.

A trip to a fair is a more or less spectacular event, as is the Washington trip, but it gives the young

farmers certain concrete agricultural experience which they do not receive from excursions to the sights of Washington. At the fair in question the young men were housed on the fair grounds in tents, two to four in each tent, all in charge of men employed by the State or Government to look after their interests.

The young men had a regular program which kept them busy most of the week of their stay. One day an expert took the young men to view the improved farm implements on display. The boys were shown the machinery and its uses were explained. Another day a seed expert showed the boys the exhibits of seeds and gave them practical advice on seed selection. The boys were taken in the same manner to view the beef cattle and other live stock. They were taught to pass judgment on the good qualities of the animals. They were schooled in the method of judging the best pigs. Informal lectures were given at the camp on these various subjects. The young men took back much valuable knowledge with them besides having a good time.

IS FARMING A PROFITABLE BUSINESS?

That the American type of farming needs large areas in contrast to the European type and that modern machinery with the use of more horses and fewer men has made the small farm an inefficient unit are conclusions of scientists of the Department of Agriculture, who have recently completed a farm-management survey in the corn belt. The following facts are taken from Bulletin No. 41, entitled "A Farm-Management Survey of Three Representative Areas in Indiana, Illinois, and Iowa." States in the corn belt were chosen for this survey because they excel almost all other regions in wealth of farm products. On rich soil, with ample rainfall, a system of agriculture is found that is unequaled as an example of the expansive type of farming.

In the region studied the owners made good profits. The average labor income of the farm owners operating their own farms was $408 and of the tenants $870. In addition, the operators had a house to live in and those products which the farm furnished toward their living.

The landlords, on the average, received 3.5 per cent on their investments. The size of their investments had no appreciable bearing on the rate of income.

Assuming that the year in which this study was made was a normal one, a labor income of $870 to the operator, whether owner or tenant, and a return of 3.5 per cent on the capital invested may be expected.

Tenant's Income.

The tenant's income is in direct proportion to his capital and the size of the farm he operates. Men owning small farms often materially increase their incomes by renting additional land. This affords a better utilization of their equipment without much increase in capital.

The tenant's income is in proportion to the risk he assumes. On the cash-rent basis his income is greater in a good year and less in a poor year than when he rents on the share basis.

The farmers making the lowest labor incomes are on big farms but fail through inefficient management. Poor crops, low prices for products sold, poor stock, failure to work, and unused capital are the main causes contributing to their failure.

Modern machinery, with the use of more horses and fewer men, has made the farm of less than 100 acres in this region an inefficient unit. Further readjustments in area will occur, which will tend to lessen the number of persons needed and at the same time increase the net production of the farm.

In the corn-belt States the family-size farm is the most desirable. It provides work for the farmer and his sons and permits the best use of men, horses, and machinery. If the small farm has a place, it must be near a city and should be highly diversified in its organization.

How Farm Expenses Are Distributed.

Approximately one-third of the total expense is for labor on the farms examined by the Office of Farm Management of the Department of Agriculture.

The average value of the farm buildings on the owner farms was $2,401, and on the tenant farms, $1,652. If we include the cost of new buildings and cash repairs, the annual charge is 5.2 per cent of the building investment on the owner farms and 4.4 per cent on those rented. These percentages are higher than they would be in a region that has been settled longer and where fewer new buildings were being erected.

The average amount invested in farm machinery and tools on the owner farms is $391. The annual expense for new machinery and cash repairs is 16.9 per cent of the inventory value. This amounts to 50 cents per crop acre per year. On the rented farms the average amount invested is $368, and the cash paid out for new machinery, harness, and repairs is 21.2 per cent of the inventory value. This makes a cost of 56 cents per crop acre. It is expected that the cost would be higher on the latter, as men just starting in farming as tenants would be likely to purchase more new machinery.

How the Type of Farming Affects the Income.

All the farmers in the regions studied are following the same general expansive system of agriculture, developed on the basis of maximum product per man. Within this system two important types are found. One is the crop farm where 50 per cent or over of the total farm receipts are derived from the sale of grain. The other type is the live-stock farm, where the farmer markets his crops largely through hogs, horses, and beef cattle. The number of men following each type vary greatly in different years according to the rela-

tive price of cattle and hogs. However, in the present farm investigations, the live-stock men had a larger area and more cattle and were receiving a much higher labor income. The average labor income of the crop farmer who owned his farm is $28 per farm and of the live-stock men $755.

THE VALUE OF FORAGE CROPS FOR GROWING PIGS.

Farmers and pig growers do not always appreciate the value of green feeds and succulent pastures for their animals. Too often the hog is considered a scavenger, and his ability to use waste is regarded as his chief value. However well he serves this purpose, he will pay well for good care, feed and housing.

Forage crops are especially beneficial to young growing animals. It is possible to grow them much more profitably and successfully when a good green field of palatable and nutritious pasturage is provided. Experiments and practical farmers' experiences prove that gains in weight are made at less cost on forage than in the dry lot. Brood sows can be carried through the season on pasture at less cost than when grain fields are entirely depended upon. Foraging induces the animal to exercise and obtain fresh air, and these prevent diseases being contracted, and when the animals are put in the fattening pen their gains are unusually rapid and profitable. The green feeds eaten are of much value just to keep the pig's digestive system in good condition and the appetite keen.

The entire hog herd can be run on forage crops and will profit by this method of management. Younger animals seem to derive the most benefit and fattening hogs the least. Herd sows and the herd boar are benefited by having green feeds. It is a good plan to have the brood sow running on green pasture at farrowing time, as this is conducive to a strong, healthy litter of pigs. She should be kept on green forage from the time she farrows. The young pigs will soon learn to eat, and the exercise and the green food in its natural state will start them along in good condition.

The method of feeding when on pasture will necessarily vary according to the kind of crop used. If the crop grown be rape, alfalfa, clover, cowpeas, soy beans, or other crops high in protein content, the grain ration need not be supplemented by feeds high in protein. If blue grass, rye, oats, or other nonleguminous crops are grown, it is best to add a small percentage of feeds high in protein to the grain. Corn or barley usually furnish the bulk of the grain ration, and when necessary these can be supplemented by adding one-tenth linseed-oil meal or one-sixteenth tankage. The rate of feeding will depend on the gains desired. Considering a full grain ration to be 4 pounds daily per 100 pounds live weight, we may say that for ordinary work with growing shoats a one-half grain ration, or 2 pounds a day for each 100 pounds live weight, will give satisfactory results. If it is desired to make faster gains, a heavier grain ration can be used; and if it is desired to maintain the animals as cheaply as possible, a smaller percentage should be fed.

It seems doubtful if it ever pays to try to keep pigs on forage crops alone. These crops are sometimes sufficient to keep the pigs growing, but the gains are not usually made economically. Usually the pigs are kept at a loss in live weight. Where brood sows are kept they should be given enough grain to keep them in good thrifty condition. The fact that the forage crops have high value when grains are fed does not mean that they should be fed alone.

The crops best adapted to grazing with pigs are alfalfa, rape, clover, blue grass, bermuda, rye, oats, soy beans, and cowpeas. The nature of the soil, the climate, and the rainfall are influences that should govern the selection of the crops to be used. Alfalfa is the greatest forage crop on soils suited to its growth. Rape and clover are also excellent feeds, and both are high in protein, the element needed to balance ordinary grain feeds.

Farmers are urged to plan some system of forage crops for their hogs. Now is the time to plan some fields to be sown to crops adapted to grazing. If permanent pastures are available, fence off a portion for the pigs and plant some crop to keep the pigs growing when the permanent pastures dry up, and the returns from the year's work with hogs will be proportionately increased. Give the pig an honest chance to make you money by giving him green feeds in their natural state and his growth, health, and pork-making ability will be increased.

DEPARTMENT OF AGRICULTURE HOLDS THAT YELLOW BAKING POWDER IS NOT A SUBSTITUTE FOR EGGS.

The Department of Agriculture has recently received letters from a number of persons who desire to place a product on the market under the name "Egg Powder," or "Egg Substitute." These designations would undoubtedly lead the ordinary purchaser to believe the product either to be made from eggs or to have the effect of eggs in baking. In reality, the product is nothing but a baking powder containing a considerable excess of ground rice as a filler and colored yellow with powdered turmeric.

The food and drugs act prohibits the sale of food products under false or misleading names, and as it is evident that a product of this kind can not be regarded in any way as a substitute for eggs in baking, its sale as an egg powder or egg substitute is not sanctioned by the department.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., MARCH 4, 1914 No. 30

HOW THE FARMER CAN USE THE FACILITIES OF THE U. S. DEPARTMENT OF AGRICULTURE.

How certain offices of the Department's Bureau of Plant Industry are particularly valuable to the farmer has been shown in past issues of the News Letter (vol. 1: Nos. 9, 11, 21, and 22). Other offices of this bureau are of particular interest to fruit growers and gardeners. A brief explanation of the fields they cover is given herewith.

How Plant Industry's Experiments Aid Fruit Growers and Gardeners.

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION.

It is the object of this office to experiment with seeds, plants, and fruits from foreign countries for the purpose of discovering such as might be economically valuable to the fruit growers, gardeners, and other agriculturists of this country. During the 16 years that this office has been in existence over 34,000 introductions have been scattered over the United States. Many of these, of course, have been failures owing to some unforeseen condition of soil or climate which hindered the proper development of the new plant. Others, however, have been great successes.

Among the fruits and vegetables that promise much, although they have only been recently introduced here, are the mango, the date palm, the Oriental persimmon, the avocado (commonly known as the alligator pear), the papaya, the Chinese jujube, and the dasheen.

The mango industry has already attained some degree of development in Florida. Last year 300 dozen of one variety were sold at $3 per dozen.

There are over 100 varieties of dates now growing in the Government gardens in California and Arizona, from which the suckers are being distributed to prospective planters. When the date plantations of the far West come into full bearing, as they should in about 10 years, a superior date, now unknown on our markets, will probably find its way to the tables of the poor as well as of the rich.

Only recently the experts of this office have discovered that in Japan an artificial method is employed of removing the objectionable pucker which our native varieties of persimmons possess. Now, the office is working out methods of improving the Oriental persimmon. It has also introduced a seedless and puckerless persimmon from China.

A new Chinese peach stock has recently been introduced by this office which has proven hardier than the old seedling stocks, and therefore can be grown farther north.

The root of this peach is the important part, as the fruit is not edible, but varieties of our own peaches are being successfully worked upon the hardier Chinese root. This is now being tried out in Iowa. The office is preparing to distribute this year about 20,000 roots to nurserymen and fruit growers who will work other varieties of peaches on these roots and set them in their orchards.

The introductions of this office are not confined to fruits and vegetables. New poplars, willows, and other shade trees, which 20 years ago were unknown in this country, now beautify our avenues as a result of its work. After several unsuccessful attempts the timber bamboo of the Orient is being introduced in the Southern States. Already there are small groves in Louisiana, California, Texas, and Georgia. There is no plant in the world that can be put to so many uses as the bamboo.

This office sends out agricultural explorers to various parts of the world as occasion requires for new fruits and plants. It keeps in touch with botanists, scientific institutions, and commercial firms all over the world. It is now in a position to secure quickly from any part of the globe any plant on which it may desire to experiment.

While considerable outlay is sometimes necessary to make new introductions, practical results to the fruit grower, gardener, and farmer more than justify expenses. One of the most striking introductions of fruit ever made by our Department of Agriculture was that of the seedless orange. The value of this crop in California is now over $10,000,000 every year. Millions of California navel orange trees are the descendants of the few that were introduced by the department in the seventies. This was before the establishment of the special office, which has now systematized the work and developed it into one of the important features of the department.

THE ARLINGTON EXPERIMENTAL FARM.

Arlington Farm is the field laboratory of the Department of Agriculture, and the results of the work done there are of particular importance to the fruit grower and gardener. Here the scientists of the Bureau of Plant Industry grow fruits, vegetables, drug and forage crops for their experiments, and breed and test plants. The farm was originally a part of the estate of George Washington Park Custis, the adopted son of George Washington, and later the home of Robert E. Lee.

A large collection of fruit trees is maintained in connection with the pomological work. A range of greenhouses is devoted to the problems of the florist and grower of vegetables under glass. A collection of shrubs and trees is arranged about the grounds surrounding the buildings so as to produce a pleasing landscape effect.

The place is thoroughly equipped with modern tools and farm machinery so that the various types of field experiments conducted may be carried on to advantage. In addition to ample barns and tool sheds, the place has a drug laboratory, dry kilns, and a refrigerating plant.

It is easily reached by trolley from the main laboratories of the department in Washington and for that reason forms a most valuable supplement to the research work of the department. The available area of about 300 acres has been quite outgrown by the many demands of the various offices and laboratories but fortunately the dredging operations for deepening the channel of the Potomac River will raise the level of some 75 or 80 acres, which have heretofore been flooded at high tide, and make them available for the growing needs of the farm.

OFFICE OF EXPERIMENTAL GARDENS AND GROUNDS.

In addition to its experimental farm at Arlington the department has greenhouses on its grounds in Washington where fruits and flowers are grown for purposes of experiment. These are in charge of a separate office of the Bureau of Plant Industry, which also has charge of the care and ornamentation of the grounds surrounding the department's buildings.

Many practical problems are worked out in the greenhouses by scientists who are seeking cures for certain plant diseases or endeavoring to produce new and better strains of commercially valuable plants.

Many interesting and unusual plants and trees are grown both in the greenhouses and on the grounds outside. One of the original navel orange trees brought from South America from which the California industry developed may still be seen in one of the greenhouses. There are collections of other rare plants, including a great variety of unusual cacti, a vine 459 feet long, and strange hybrids made by growing one plant on the root of another. All of these may be seen by the visitor.

(*To be continued.*)

COST AND LOCATION OF EARTH ROADS.

The cost of hauling over country roads is largely determined by the size of the load that can be hauled, the number of trips that can be made in a day, and the wear and tear on teams and equipment, according to the Office of Public Roads. Steep grades, as well as ruts and mudholes, serve to decrease both the speed and the load. On the principle that a chain is no stronger than its weakest link, the maximum load that a team can draw is the load that it can draw up the steepest hill or through the deepest mudhole on that road.

Wherever possible roads should be located on straight lines between terminal points. In hilly or mountainous country, however, the attempts to keep roads straight between terminals often leads to the serious error of heavy grades. Straightness and grade must, therefore, be handled together. The best location is one which is straight in general direction, is free from steep grades, is located on solid ground, and serves the largest possible number of people. Roads should be located for the benefit of the public, as well as the private landowner.

The elimination of one or two steep hills on a line of road will frequently enable horses to draw three or four times as much as they could draw on the old road. It takes approximately four times as much power to draw loads up 10 per cent grades (10 feet vertical in 100 feet horizontal) as on a level; but on a 4 per cent or 5 per cent grade a horse can usually draw (for a short time) as much as he can draw on a level. A 4 per cent grade is, therefore, considered the maximum on roads subject to heavy hauling. Many steep grades may be avoided by locating the road around instead of over the hill—the handle of the bucket is no longer when held in a horizontal position than in a vertical. By going around we avoid two steep hills.

If the road must pass up a steep hill or mountain sides, the steepness of the grade may be decreased by increasing the length of the road. In other words, eliminate steep grades by locating the road on curved or zigzag lines, and not in a straight line from the bottom to the top of the hill. These curves should be carefully plotted and the straight stretches located with an instrument. This improves the looks of the road and does not add materially to its cost.

Meaning of a One-Foot Grade.

In studying the relation of grade to distance the following calculation is interesting: To lift a ton 1 foot high requires 2,000 foot-pounds of energy; on a road the surface of which offers 100 pounds of tractive resistance per ton the same energy would roll the ton a horizontal distance of 20 feet. To save 1 foot of grade the road may therefore be lengthened 20 feet.

Roads should never be located so close to stream beds as to be subject to overflow, or on ground which is constantly damp and marshy.

The earth road should have at least six hours of sunshine each day. This can be secured either by locating the road with southern or western exposure, or by having such brush and trees as impede the drying action of the sun and wind removed. With gravel and stone roads this is not so necessary, as a certain

amount of moisture is needed on such roads, especially in the summer time.

Relocating roads is not an engineering problem alone. One must also consider the effect of the road on those who now live upon it. Many farmers dislike to have the road placed back of their house or out of sight of it. It requires tact and good judgment to secure a suitable location without arousing harsh antagonism.

SHEEP RAISING CAN BE MADE PROFITABLE.

The consumption of mutton per capita in the United States is increasing every year, though the amount used is much less in proportion to other meat than in Europe. There are good reasons for expecting a continuation of good prices for mutton and lamb, and the demand for wool also may be expected to increase more rapidly than the production. These facts are brought out in a recent letter from a specialist of the department to a southern farmer who inquired regarding the possibilities of the sheep business.

The department's specialist called attention to the fact that while farm-raised sheep have often not been profitable, this has usually been because of lack of proper attention and management. Variations in price of wool and mutton have stood in the way of such general interest in sheep as would cause them to be regarded as highly as they should be in the future. Ranges all over the world are now carrying about as many sheep as they can support under a strict range system, and an increase in the production of sheep products must come mainly from farms. Here, then, is the farmer's opportunity to take advantage of the increased consumption of these products.

While mutton can be produced at low cost and there is a growing demand for it, difficulty in selling may be experienced in sections where the amount of live stock produced has not been sufficient to make it worth while for regular buyers to operate. Slaughtering plants that can handle carloads are within reach of all sections, and if a sufficient number of neighbors combine to have 100 lambs of similar breeding, size, and condition to ship jointly the returns are assured. It will also be possible to secure visits and bids from buyers when such a number is promised. The lamb clubs of Tennessee, notably the one at Goodlettsville, have proven very successful in this work.

The same organization can also be used in disposing of the wool.

In countries where economy in farm management has been studied a long time, the sheep is considered to be necessary in utilizing vegetation on such waste lands as are not wet or marshy. But the sheep can hold its place on high-priced land as a meat producer alone. Compared with larger animals it has some important advantages. First, the lambs mature very rapidly, being marketable at four months of age or later, according to breeding and feeding. This is an economy because a larger proportion of the total feed goes into increase of weight than in slower growing animals. Second, the sheep consumes a greater variety of plants than do other animals. Many of such plants are detrimental to pastures and would otherwise require hand labor to hold them in check. Third, grain waste in harvesting can be entirely recovered by sheep. These facts prompt some farmers to claim that the summer food of sheep costs nothing, because what they consume would otherwise bring no returns.

Compared with hogs the sheep has an advantage in the wider variety of materials it consumes. Being a ruminant it makes its gain with a minimum of grain and expensive concentrates. This is especially important on some southern lands that are better adapted to the production of forage crops than to grain growing.

Like the hog, the sheep has its peculiar ailments which sometimes result in loss as well as discouragement. Unlike the ailments of the hog, however, those of the sheep are ordinarily not contagious, and the means necessary to prevention are the same as should be adopted for the most economical production, even in health.

The most serious menace to continuous thrift in the flock is the presence of internal parasites, chiefly stomach worms. The eggs of the stomach worm are dropped upon the ground with the feces from infected sheep. The small worms are swallowed with the grass three or four days after hatching from the eggs, and reach the stomach. Stomach worms are frequently present in such large numbers as to draw so heavily from the circulation as to cause emaciation and finally death of the lamb. Mature sheep are much less affected by these worms, though they usually scatter the eggs.

Keeping the flock upon crops sown upon plowed land prevents infection. Such practice also furnishes the greatest amount of feed from each acre and the kind and variety of food upon which sheep thrive best. Plowing the land prevents danger from stomach worm eggs dropped upon it. In warm weather the flock should be moved to fresh ground every 10 days or two weeks to prevent infection of lambs by larvæ from eggs dropped from the ewes. If lambs are by themselves, the time between changes might be longer, but in most forage crop rotations changes will need to be made every two or three weeks. Fall-sown rye, spring oats, and vetches or peas, rape, cowpeas, soy beans, crimson or Japan clover, planted at proper intervals, will furnish fresh pasturage at times desired. Some of the land can be used twice in a year, as by having one planting of rape upon the rye ground. The cultivation of the land destroys all infection from previous pasturing. Under such a system of cropping and grazing the land will improve, as the manurial value

of the crops is practically all left upon the land and is very evenly distributed. Like the boll weevil, the stomach worm was considered to be wholly an evil thing until it was found that the methods of prevention and circumvention were also the best methods for economical production.

In most parts of the South ewes will drop their lambs in November or December. Stomach worms are much less troublesome in the cooler months. Also rape and some other forages will furnish good winter feed if planted early enough to make a fair growth before the coldest weather. Lambs marketed in March or April sell at a premium because of the market scarcity of genuine spring lambs at that time of the year.

TO PROTECT SHEEP FROM DOGS.

The dog question is a serious one in many sections, and better State legislation is needed to protect flocks from the ravages of worthless curs. Woven-wire fences will turn dogs. While it is expensive to fence large pastures in this way, smaller fields devoted to forage crops will carry the flock in a more healthy condition and require much less outlay for fencing. The whole forage crop area can be fenced and lower portable fences used for confining the sheep to the particular crop ready for grazing.

It is seldom that the highly-bred and well-kept dogs attack sheep. The roving nondescripts do most of the damage. Communities in which the majority of people consider sheep to be of more importance than dogs will have a sentiment that is not healthful or dogs that travel independently.

DEADLY TYPHOID FLY AN OLD ACQUAINTANCE IN DISGUISE.

Department of Agriculture Investigates Certain Disease-bearing Insects, Including Stable Fly, and the Spotted Fever Tick.

"We have never heard of the typhoid fly," the average person will say on hearing that insect mentioned.

The typhoid fly is merely an old acquaintance in disguise. The Department of Agriculture's scientists have decided that this is the most appropriate name for the insect commonly known as the "house fly," which is a most dangerous creature, although considered at most simply a nuisance by many people. This fly is one of the most active agents in spreading typhoid fever. It spreads Asiatic cholera and other diseases of the intestines. It has even been known to be a minor factor in spreading tuberculosis. If the name of the typhoid fly could be popularized, perhaps a more general idea could be given of the danger that lurks wherever the pest is present.

Another name which has been suggested for this pest is even better than the ordinary term "house fly." This is "manure fly." The insect is quite as partial to manure as it is to the house. Its chief breeding place is the manure heap. In eradicating the breeding place of this pest, however, the department is seeking a method that will accomplish the work without lessening the value of the fertilizer. Satisfactory progress has been made and announcements concerning new methods probably will be issued soon.

The fly season begins in the South during the last part of February, and the department's investigator of malarial mosquitoes there is also considering methods for controlling the typhoid fly.

The department is also investigating the stable fly, which is an important enemy to agriculture, in that it seriously reduces the value of live stock. It is also suspected of carrying infantile paralysis. In Montana the department is conducting another investigation of a disease-bearing insect. This is the carrier of "spotted fever"—a species of tick in the northern Rocky Mountain region. Still another investigation has to do with the possibility that pellagra is transmitted by insects. This has not yet been proven.

The Department of Agriculture's Bureau of Entomology has a bulletin for distribution dealing with the typhoid fly. Remedies and preventives are recommended.

DIRECTORY OF THE DEPARTMENT OF AGRICULTURE.

Secretary of Agriculture, David F. Houston.
Is the executive and administrative head of the department and represents it in the President's Cabinet.

Assistant Secretary of Agriculture, Beverly T. Galloway.
Assists in directing the work of the department. In the absence of the Secretary he becomes Acting Secretary.

Weather Bureau, Chas. F. Marvin, Chief.
Conducts meteorological investigations; issues weather maps; handles all work relating to climate, storm warnings, frost warnings, etc.

Forest Service, Henry S. Graves, Forester.
Administers the national forests and develops use of their resources.

Bureau of Animal Industry, A. D. Melvin, Chief.
Studies and gives information regarding live stock; conducts the meat inspection and quarantine work.

Bureau of Plant Industry, Wm. A. Taylor, Chief.
Investigates problems relating to plants and plant industries.

Bureau of Chemistry, Carl L. Alsberg, Chief.
Enforces the pure-food law; investigates questions of agricultural chemistry.

Bureau of Soils, Milton Whitney, Chief.
Surveys and maps the soils, and investigates the fertilizer resources of the United States.

Bureau of Entomology, L. O. Howard, Chief.
Studies insects in their relations to agriculture.

Bureau of Biological Survey, Henry W. Henshaw, Chief.
Studies wild birds and animals in their relation to agriculture; administers the Federal laws protecting game and regulating the importation of birds and animals.

Bureau of Statistics (Bureau of Agricultural Forecasts), Leon M. Estabrook, Chief.
Collects crop statistics; gathers and collates general agricultural statistics; issues crop reports and forecasts.

Office of Public Roads, Logan Waller Page, Director.
Studies and supplies information regarding road making, management, and maintenance.

Office of Experiment Stations, A. C. True, Director.
Supervises the use of Federal funds for agricultural experiment stations; investigates agricultural education, irrigation, drainage, and human nutrition.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., MARCH 11, 1914 No. 31

PREPARING SEED CORN FOR PLANTING.

Requests are now reaching the department for information in regard to preparing seed corn for planting. The most vital part of seed corn selection work can be performed only at corn ripening time in the fall. Of thousands of different lots of seed corn planted by the Office of Corn Investigations not one lot of seed that matured properly and was gathered as soon as mature and promptly dried has been found poor of germination.

Every corn grower should now spend a day or more getting his seed corn entirely ready for planting. The present work consists of discarding undesirable ears, germination testing, nubbing, classifying the ears, shelling, and testing the accuracy of drop of the corn planter.

DISCARDING UNDESIRABLE EARS.

The quality and productiveness of the seed supply can now be improved by discarding the poorer ears and the poorer kernels.

The seed corn should now be "as dry as a bone," and among the ears that appeared desirable last fall some undesirable ones will now be found. Discard any that have discolored kernels or cob or that have a dead appearance. Discard any that are light in weight and any with undesirable kernels, such as small size, very sharp beaks, germs of poor development and appearance, etc.

All the ears retained should show good development and maturity; be heavy for their size, and contain solid, vigorous-looking kernels of fairly uniform size and shape. These desirable ears should now be tested to determine whether all the kernels will grow.

GERMINATION TESTING.

Although good seed selection and preservation usually make a separate testing of the germination of each ear unnecessary, it is advisable to exercise precaution by demonstrating that the ears will germinate well. Ten kernels from each of 50 ears can be tested by one of the various methods that have been so well described in literature. This demonstration that 50 representative ears germinate satisfactorily is sufficient evidence of the uselessness of testing each ear of the entire supply. If ears of poor germination should be found, it will be advisable to test each ear of the entire supply in order to be able to discard those in poor germination.

NUBBING.

Discard the small, partially developed kernels from the tip of the ears. Why? Because such kernels do not yield well. Careful field experiments have demonstrated that they grow into small, barren, and poor producing stalks.

Discard the round, thick kernels from the butts of the ears. Why? Because the corn planter can not drop evenly if they are included with the other kernels.

Kernels that have been injured by mice or weevils, or that are otherwise undesirable, should also be discarded before the ears are shelled.

CLASSIFYING THE EARS.

As it is highly advisable that the corn planter should drop an equal number of kernels in each hill, which it can not do unless the kernels are of uniform size and shape, it is advisable to classify the ears before shelling them. Those having large kernels should be included in one class and those having medium-size kernels in another class. Each class should be shelled and bagged separately. To these bags, the planter plates that testing has shown will drop regularly the proper number of kernels, should be tied for convenience at planting time.

Shelled seed corn can be cleaned and graded by expensive, properly adjusted graders, but the method just described of classifying the ears before shelling is more satisfactory.

HOW TO SHELL SEED CORN.

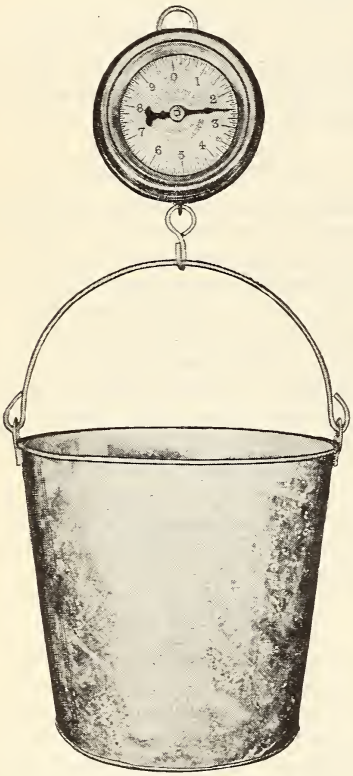
Seed corn should be shelled by hand. Careful hand shelling pays the man who plants but a few acres, and it pays to a greater degree the man who plants hundreds of acres. Each ear should be shelled separately into a hand sieve. This permits the chaff from the cob to fall through and the kernels from each ear to be closely inspected before being dumped into the general supply. The value of this close inspection is lost if the ears are run through a corn sheller, and some of the kernels cracked or broken.

HOW TO MEASURE RAINFALL ON THE FARM.

The amount of corn, wheat, cotton, tobacco, etc., that can be harvested from a given acre of ground, other things being the same, bears an intimate relation from year to year to the amount of water supplied to the same acre by rainfall or otherwise, as com-

pared with the average rainfall of the locality. If the progressive farmer will only keep a careful record of the rain that falls in his locality, especially throughout the growing season, and compare this with the normal or average amount for the same region, he will find himself able, as the season advances, to form a very intelligent estimate of the prospects for a good, a bad, or an average yield of his more important crops.

An excellent equipment for collecting and measuring either rain or snow consists of a simple pail or bucket. The location selected for setting out the pail should be chosen at a point in some open lot or field unobstructed by large trees or buildings; nevertheless, low bushes, fences, or walls that break the force of the



wind in the vicinity of the gauge are beneficial if not too near or too high. Low vegetal growth near the gauge is also beneficial, but the top of the pail must be at least as high as the general growth. It is almost needless to say that the pail must be secured against being overturned by the wind, animals, or accidental causes. Such a collector of rainfall constitutes almost an ideal rain and snow gauge, and it remains only to explain how to measure the collected precipitation properly. This is best done by weighing the contents of the pail. A balance should be used that will give the weight accurately in ounces or half ounces. If such a scale is not already in the possession of the farmer, it will more than repay him to buy one of the inexpensive spring balances such as shown in the cut herewith. If now the diameter of the pail is just 10½ inches at the topmost edge, each ounce of water collected represents two-hundredths of an inch of rainfall, or, in figures, 0.02. Many 12-gallon pails are exactly 10½ inches at the topmost edge. If, for example, after a rainfall the pail and its contained water is found to weigh say 3 pounds 8 ounces, and the empty pail alone weighs only 1 pound 14 ounces, the difference gives 1 pound 10 ounces net = 26 ounces; $26 \times .02 = .52$ inches of rain.

The measurement of the contents of the pail by weighing avoids all difficulties as to whether the precipitation is in the form of rain or snow. The result is always the equivalent depth of rainfall. Moreover a pail with sloping sides is just as good as, in fact it is better than, one with vertical or parallel sides. In each case, however, the diameter must be just 10½ at the top inside edge, so that each half ounce of collected material represents one-hundredth of an inch of precipitation. The record should be taken at about the same time each day—weather observers record one day's fall regularly at 5 p. m. In hot weather, when water evaporates quickly, the record should be made as soon after the rain has stopped as is practicable.

METHODS TO CONTROL BLIND STAGGERS, WHICH IS CAUSING THE DEATH OF THOUSANDS OF HORSES.

In past years horses have died by the thousands in Texas, Iowa, Kansas, and Nebraska from a disease affecting the nervous system, popularly known as blind staggers or forage poisoning. The department has received urgent requests for help against this disease from 16 different States, and as a result it is now publishing a bulletin containing definite instructions for combating this disease.

The States that appealed to the department for assistance include the following:

Colorado.	Maryland.	North Carolina.	Virginia.
Georgia.	Missouri.	Oregon.	West Virginia.
Kentucky.	Nebraska.	South Carolina.	
Louisiana.	New Jersey.	South Dakota.	

This shows the universality of the disease. Kansas and Nebraska bore the brunt of the affliction during the past year, but other States have also suffered seriously. Kansas has had more than her share. Severe outbreaks extended over almost the entire State in 1891 and since that date have recurred with equal severity on two occasions in various portions of the State.

The bulletin takes notice of the fact that additional deaths have undoubtedly been due to the use of fake "cures" sold by unscrupulous persons. It is reported that in Nebraska "blackleg vaccine" was used on at least 1,600 unaffected horses, nearly 1,500 of which are said to have died as a direct result.

Investigators have practically established that this horse disease can be controlled effectively only by a total change of feed and forage. It is quite obvious that there is a direct connection between the green forage, exposed pasturage, and newly-cut hay or fodder which the horses eat and this cerebro spinal meningitis, as the disease is known to scientists. In fact, eating of such forage when contaminated is undoubtedly the most important cause. Over 95 per cent of cases of this disease in Kansas and Nebraska during the outbreak of 1912 were maintained under such conditions.

Great care must be taken that horses do not obtain the dangerous forage unknown to their owners. The owner of one farm informed the department's investigator that his dead horses had eaten nothing but old hay and grain.

"But what about the closely-cropped grass in this pasture?" remarked the investigator, noticing the adjacent field.

"Oh," answered the farmer innocently, "I always turn the work horses into pasture overnight."

Many horses have died from blind staggers caused by eating moldy baled hay. As soon as the hay was eliminated the disease ceased. Other horses in the vicinity, not fed upon this hay, failed to contract this disease. Later some of the moldy bales were opened and exposed to the sun for three or four weeks. After this the hay was fed to horses without producing any ill effect. Forage poisoning, therefore, seems not to be an infection, but rather what is called "auto-intoxication"—that is, it is due to certain chemical poisons or toxins formed by the activity of internal organisms. These poisons may be present when the forage is taken into the body or may be formed in the stomach. The nature of this poison is still unknown.

CHARACTERISTIC SYMPTOMS OF THIS DISEASE.

When the horse is taken with the blind staggers it usually exhibits a disturbance of the appetite, depression, and weakness, while there is trouble in swallowing, drooping of the head, and sleepiness, which may give way to excitement and attacks of dizziness. The vision is impaired, which results in the staggering gait that gives the disease its popular name. Certain muscles of the neck and flanks are cramped and there is a grinding of the teeth. Sometimes the animal has pains as though it were afflicted with colic. The animal will walk strangely if in an open space and will try to push through any obstacle it encounters. In the stable he will press his head against the stall or rest it on the manger. Sometimes he will crowd into a corner. The temperature at the beginning of the disease ranges from 103° to 107° F., but within 24 hours the temperature falls and eventually becomes subnormal. The animal is often down on the second or third day and may or may not get up when urged. Death usually occurs in from 4 to 8 days, although death may follow within 10 hours of the first symptoms, while chronic cases have been known to last for 3 weeks. About 90 per cent of the affected animals die.

MEDICAL TREATMENT GENERALLY UNSATISFACTORY.

While medical treatment in the vast majority of cases has not brought results, nevertheless if it is used at all it must be prompt and before the disease has had time to run. The digestive tract should be cleaned out thoroughly at once. Active and concentrated remedies should be given. Afflicted animals, however, have great difficulty in swallowing immediately after being taken, so that these remedies must generally be given by injection. Arecolin in one-half grain doses, subcutaneously, has given good results as a purgative. Early in the disease urotropin in doses of 25 grains dissolved in water and given by the mouth every two hours, appears to have been responsible for the recovery of some cases of the malady.

After the animal has been purged, the treatment varies according to the symptoms. The following measures have been recommended:

The first and most important: Feed only clean, well-cured forage and grain, and pure water.

Calomel, salol, and salicylic acid, to disinfect intestines.

Mild antiseptic mouth washes are advisable.

Copious cold-water injections, if the temperature is high, give better results than antipyretics.

An ice pack applied to the head is beneficial in the case of marked nervous disorder.

One-ounce doses of chloral hydrate per rectum should be given if the patient is violent or muscular spasms are severe.

If the temperature becomes subnormal, the animal should be warmly blanketed.

If much weakness is shown this should be combated with stimulants, such as strychnine, camphor, alcohol, atropin, or aromatic spirits of ammonia.

During convalescense the usual tonic treatment is recommended.

The Department of Agriculture's bulletin (No. 65) is entitled "Cerebrospinal Meningitis (Forage Poisoning)," and may be had on application to the Department of Agriculture, Washington, D. C.

SUCCESS OF A GIRLS' CANNING CLUB IN NEW JERSEY

Figures have been received by the department regarding the marketing activities of the Girls' Garden and Canning Clubs in Sussex County, N. J. The members attend school 10 months of the year, yet it was one of these girls who won the State championship. Besides marketing a large quantity of fresh

product, she was able to put up 1,005 cans of tomatoes from a tenth of an acre—and this was her first experience at gardening.

The Delaware, Lackawanna & Western Railroad, which runs through this county, after an examination of a sample of the girls' product, gave an order for 100 dozen No. 3 cans, at $1.20 per dozen. There was also a large local demand. Fresh tomatoes were carefully graded and crated and sold to the railroad at $1.50 per bushel crate, while tomatoes on the local market brought only about 40 cents or 50 cents a bushel. During October, 10 bushel crates of fresh tomatoes were shipped, at $2.10 per crate.

CLOVER SEED A BY-PRODUCT OF THE HULLER.

Barron County, Wis., produces a large quantity of clover seed which in the past has been dumped upon the market as it comes from the huller. As a result a very low price has been realized. A county agent has organized a cooperative company to reclean the seed and put it on the market in car lots. This county has also organized a live-stock exchange, with the county agent's office as a clearing house.

VALUE OF STRAW AS FERTILIZER.

A large amount of straw is shipped from a county in Missouri to a near-by paper and strawboard factory. This straw brings the farmer about 50 cents per ton. A county agent recently found a pile of about 1,000 tons at Sikeston ready for shipment. He computes that as a fertilizer this straw is worth $2.50 per ton in addition to its value as a means of adding organic matter to the soil. He is making a campaign of the county in an attempt to show the inadvisability of the farmers selling their straw and urging its more extensive use as bedding in stables and feed lots. Straw used as a top dressing on fall wheat has been found to practically insure a good stand of clover on lands where clover is otherwise grown with great difficulty.

THE RELATION OF ROADS TO RURAL SCHOOLS.

The rural population is more willing to support better schools to-day than at any previous time. It is being realized that all educational activities or agencies must be more or less correlated, and, more than all else, that they must be made accessible to the children. In many counties where bad roads prevail, most of the schools are of the antiquated one-room variety. They are usually located along bad roads, which, during the winter, when the schools are usually in session, become so nearly impassable as to make it difficult for the children to reach them. This condition causes irregular attendance and restricts the educational opportunities of the child. Not only this, but it often impedes the economic consolidation of these smaller schools into larger, stronger graded schools, with high-school courses, directed by a competent principal and corps of teachers, according to the Office of Public Roads.

On the other hand, in counties which have improved their roads the schools are easily reached, the average attendance greater, the efficiency largely increased, and economic consolidation made possible. Regular attendance at school means consistent and regular growth of both school and pupil, and consolidation of schools means a maximum of efficiency at a minimum of cost. It is also noteworthy that there is a marked tendency for the consolidated school to become the social and intellectual center of the community. Most modern rural schoolhouses are so constructed as to serve the community as gathering places for various kinds of public meetings, and where vans are used to convey the children to school during the day they are frequently pressed into service to haul the farmers and their wives to institute work, lectures, or entertainments at the schoolhouse. The consolidated school becomes a sort of community center to which all educational and social activities converge, and in order that it may properly perform that function all of the highways leading to it should be so improved as to render it readily accessible throughout the year.

A NEW SYSTEM OF COTTON CULTURE.

A new system of cotton culture, which lessens the danger of injury from the boll weevil, has been developed by the office in the Bureau of Plant Industry which is in charge of cotton breeding. By this system it has been made possible to control the formation of the branches and shorten the season required for the setting of the crop.

The formation of the branches is controlled by an improved method of thinning. By leaving the plants closer together during the early stages the production of vegetative branches is avoided and larger numbers of bolls are developed on the lower fruiting branches of the main stalk of the plant.

This method of later and more gradual thinning makes it possible to leave more plants in the rows than is now customary, and yet injurious crowding is avoided because the vegetative branches are suppressed, instead of being allowed to grow up and smother the lower fruiting branches where the early flowers and bolls are produced.

Earlier planting is a means of securing larger yields in regions where the period of crop production is limited either by short seasons or by the presence of the boll weevil. Greatly increased yields have been secured in this way, even as high as 50 per cent.

The Bureau of Plant Industry will supply free to cotton growers on application its circular which describes this new system.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., MARCH 18, 1914 No. 32

A SIMPLE SANITARY SYSTEM FOR THE FARM HOME.

A simple sanitary system is a most important and necessary feature for every farm home. Without it the health of the family is in danger, however attractive and well arranged a farmhouse may be in every other respect. It is a matter that should not be postponed to a time when other matters do not press for attention, but should be considered the moment it is needed. The department has just issued a bulletin giving a detailed description of a simple sanitary system suitable for the average farm home, which consists of 46 pages and contains 38 figures and diagrams with a number of tables. It will be sent free to any farmer on application.

The new bulletin is the result of a careful study. Convenience, comfort, and economy have all been considered and they may all be obtained if the suggestions given are practically applied with care and common sense. If the farmer has neither the time nor skill to install the simple system suggested, a reliable plumber, a pump expert, or a sanitary engineer should be employed to install a system along similar lines.

The simple sanitary system recommended has four distinct features. It provides for:

(1) A pure water supply.

(2) Pumping, storage, and distribution of water supply.

(3) A durable and simple plumbing system.

(4) A safe disposal for farm sewage.

EVERY FARM HOME SHOULD HAVE A PURE WATER SUPPLY.

A pure water supply is one of the most important factors in farm life to-day, as typhoid fever, dysentery, and other disorders may be carried by impure waters. Farm-water supplies are very subject to pollution. Of 79 typical water supplies in Minnesota, investigations showed that 20 were good and 59 polluted. Twenty-five of those polluted were bad only because of poor surface protection, and could easily have been made safe. Practically all the surface supplies were polluted. During these investigations 23 of the farms examined showed a record of typhoid fever.

Surface-water supplies should not be used for household purposes or for washing milk cans. They should not even be used for laundry purposes unless no other supply is available. Rain water from the roof is often polluted by dust, leaves, and the droppings from birds. Any person who drinks water from surface supplies endangers his health if such supplies are not adequately protected and then purified.

CISTERNS FOR STORAGE OF SURFACE SUPPLIES.

Where underground waters are hard to obtain, cisterns may be used where the store of rain water and surface supplies will be filtered and partially purified.

The cistern should be of water-tight construction, to prevent leakage and to prevent pollution from the neighboring soil. It should have an overflow drain and a tight cover. There should also be suitable provision for straining or filtering the water previous to its entrance to the cistern.

WELLS SHOULD BE CAREFULLY SAFEGUARDED.

Farm wells are often polluted from local sources. They are often located for convenience near the barn or stable, or close to the back door, out of which household slops are thrown. The soil surrounding the well becomes saturated with organic filth and allows the surface water percolating through it to carry its load of contamination into the well.

The curbing or covering is often loosely constructed of boards, permitting small animals and vermin to fall into the well; and surface water carrying filth and manure, especially after rains, runs into the well from the top.

Both deep and shallow wells are subject to contamination. Of 177 deep and 411 shallow farm wells examined in Indiana, 116 of the deep-well waters were of good quality, 45 were bad, and 16 were doubtful; 159 of the shallow-well waters were good, 209 were very bad, and 43 were doubtful.

The safety of water supplies when near sources of possible surface pollution often depends largely on the character and quality of the material in which the well is sunk.

The farm well, especially a shallow-dug well, should be located somewhat above the barnyards and stock pens, at least in such a position that the surface drainage from all possible sources of contamination is away from the well. If local conditions and prices will permit, it is a good idea to provide impervious floors with water-tight drains for farm buildings and stock pens. Under the same conditions concrete manure pits might well be provided not only to prevent the liquid manure from polluting the neighboring soil, but to save the manure. No garbage, manure, or rubbish should be dumped into sinks or basins in the immediate neighborhood, and these should be fenced off and kept free from polluting matter.

The house should be provided with some safe method of sewage disposal, while slops and garbage from the kitchen should be deposited in tightly covered garbage cans and disposed of by burying in the fields, burning, or feeding to pigs. The use of privy vaults and leaching or overflowing cesspools should be absolutely avoided, since they are likely to be sources of the worst contamination. The farmer should become acquainted with the various types of wells and the best methods of protection, and the well should be so protected as to exclude filth from those sources of contamination which it has been impossible to remove or have been overlooked.

In the selection, location, and sinking of a well it is always a good idea to consider permanence in addition to safety. The well should penetrate to levels below that of the ground-water surface in the driest seasons.

Unpolluted springs are, as a rule, good sources of water supply, since the water usually comes from great depths within the rock or is filtered through many layers of sand and gravel. However, springs are subject to pollution from the same sources as wells and should be closely watched in this respect. Farm spring supplies are often polluted by the drainage from buildings and stock pens. Spring water supplies from limestone are also subject to pollution from distant garbage and sewage dumps in sink holes. The same precautions should be taken for safeguarding spring supplies as in the case of wells, and in addition the spring should always be fenced to keep out stock. Spring supplies should be frequently examined for pollution of any kind, and the water should be boiled before drinking, if possible, although this is not absolutely necessary in all cases.

After a pure water supply has been made available for the farm home the quantity of water needed must be considered. A suitable pumping equipment must be chosen, and then a satisfactory means for distributing and storing the water must be provided.

The Department of Agriculture's rural engineer shows that the quantity of water which should be provided will depend on the power used; the amount needed on whether the service is for the entire farm or for the house only.

Hand-operated systems are applicable where small quantities are required for house service only, but in case water is wanted for stock also the use of a windmill, engine, electric motor, or hydraulic ram is necessary. If a windmill is used the storage should be large enough for at least three days' supply, to provide water in case of calm weather. Where the other sources of power are used the storage capacity need not exceed one day's supply. The following table gives approximate quantities of water required per day:

Approximate quantities of water required per day.

	Gallons.
Each member of the family for all purposes will require	25–40
Each cow will require	12
Each horse will require	10
Each hog will require	2½
Each sheep will require	2

The water consumption will vary from day to day and with the seasons. Fire protection should also be considered, and in determining the size of tank the maximum amount likely to be required should be provided.

For a family of six persons a 200-gallon supply should be sufficient if the water is used in the house only. On a farm where water is supplied to a family of 6 persons, 10 horses, 12 cows, 25 hogs, and 15 sheep, the daily storage supply should be at least 500 gallons, with whatever additional amount, if any, the farmer deems necessary for fire protection.

PLUMBING MUST BE SIMPLE AND DURABLE.

The plumbing system for the average farm home should be simple and its material and construction should be durable. Water pipes should be arranged so as to carry the water in as nearly a straight line as possible to the point of discharge. The use of lead pipe or lead-lined receptacles for drinking water should be avoided in small private systems.

The sewer plumbing serves as a drain for the water plumbing. The drainage system should be so constructed as to carry away completely everything emptied into it, and it should be constantly vented, frequently and thoroughly flushed, and have each of its openings into the house securely guarded. All drains, soil pipe, and waste pipe should be water-tight and air-tight. All plumbing should be tested by filling with water or smoke to detect leaks.

SEWAGE PURIFICATION AND DISPOSAL.

The process of sewage disposal described in the new bulletin is partly mechanical and partly bacterial, consisting of a preliminary septic tank treatment and of final treatment by application to a natural soil by surface or subsurface distribution, or to a specially prepared filter.

The septic tank, although air-tight and supposedly water-tight, should be located as far from the house and the well or spring as convenience and local surroundings will permit, thus reducing the danger of pollution or nuisance in case of leakage or improper operation of the system.

Contrary to the usual opinion, small sewage systems require some watching and care. It is well to study the system and watch the action in the entire plant for any signs of clogging or water logging. If the sewage is applied continuously to the final disposal system and in such quantities that the system is kept saturated, the filter or disposal area becomes water logged and "sewage sick" and ceases to be effective. The grease trap acts as a separator of grease and sewage from the kitchen sink or dairy room. If grease is allowed to enter the sewer it accumulates and eventually clogs the system.

No cost of material or labor has been quoted in the new bulletin, since these vary considerably with time and locality, but nothing has been recommended which is not considered to be an economical investment for the progressive farmer. Progressive cities are making large expenditures for sanitary systems to protect the health of their people, and similar protection is due the country residents.

Any farmer who feels that the sanitary arrangements in his home are not entirely satisfactory is urged to apply for the Department of Agriculture's new free bulletin. With the help of a reliable plumber or sanitary engineer he will be able to work out a simple and economical solution for his problem.

SUPERIOR QUALITY LONG-STAPLE COTTON CAN BE GROWN IN AMERICA.

Long-staple cotton of superior quality can be grown to advantage in many parts of our cotton belt if the farmer can be given a more direct interest in preserving the purity and uniformity of his crop. This interest will come only as a result of greater discrimination in buying on the part of manufacturers. Buyers must cease taking inferior mixed fiber and paying as much for it as for the best and most uniform if they really wish to encourage the production of long-staple cottons in America. These facts are brought out in the bulletin, The Relation of Cotton Buying to Cotton Growing.

Formerly manufacturers have complained that the supply of long-staple cotton was inadequate and uncertain, says the bulletin. The boll weevil was supposed to have made it almost impossible to grow long-staple varieties, but this danger has been overcome. New early maturing varieties of long-staple cotton have been developed. Improved methods of culture have made it possible to produce good crops of this cotton in many parts of the United States, despite the presence of the boll weevil. Natural conditions favor its production, and almost unlimited supplies may be grown if the farmers will only be encouraged to take more care in maintaining their cotton at a high standard.

It rests largely with the commercial world of manufacturers and buyers to determine what kind of fiber the farmer shall produce to-day. Many districts of the cotton belt and the newly settled irrigated regions of the Southwest are ready and adapted for the long-staple variety if the market price warrants its production.

The presence of the boll weevil is now an additional reason for growing long-staple instead of short-staple cotton. The extra care and precautions that are required to protect the cotton against the weevil make it possible to produce a better staple. Thus the growing of long-staple cotton to sell at a higher price may be considered as a means of securing a return for the increased cost of production or the diminished yield that may be caused by the boll weevil.

The fact that some of the varieties with highest lint percentages produce extremely short, inferior fiber does not interfere with the planting of such varieties as long as the farmer can sell $\frac{3}{4}$-inch cotton for as much as 1-inch cotton or even $1\frac{1}{8}$-inch cotton. The popularity of these short-linted varieties is a result of the present system of buying. In former decades, when the quality of the fiber was considered, nobody would have thought of growing such cotton or of breeding such varieties. In addition to their inferior lint, the high percentage varieties usually have smaller seeds and weaker seedlings, a very undesirable character from the agricultural standpoint. It is easier to secure higher percentages by selecting variations toward small seeds than to increase the amount of lint on the seeds.

Manufacturers have assumed or have been led to suppose that the dangers threatening the cotton industry were purely agricultural, such as the exhaustion of the soil, change of climate, or attacks of the boll weevil, and this makes it harder for them to understand that the primary causes of deterioration in the quality of the fiber have been commercial rather than agricultural. This does not mean, of course, that there are not many other agricultural improvements that need to be made, but it does mean that the manufacturer should take greater care to see that the farmer has the necessary inducement to plant superior varieties and to adopt the more careful methods that are necessary to produce better fiber.

RECENT PUBLICATIONS FOR DISTRIBUTION.

Among the department's recent publications are those in the following list. Copies of any of the publications listed may be obtained free upon application to the Editor and Chief of the Division of Publications, United States Department of Agriculture, Washington, D. C., as long as the department's supply lasts.

Cottonwood in the Mississippi Valley. 62 pages, 8 illustrations. (Department Bulletin 24.)

Demonstrates the practicability of forest management of cottonwood and the utilization of overflowed land. Of value to landowners of the Mississippi Valley especially.

Range Improvement by Deferred and Rotation Grazing. 16 pages, 5 illustrations. (Department Bulletin 34.)

A method of restoring the range by deferring grazing until after vegetation has produced seed. Popularly written. Of interest to grazers and range managers in the West.

The Tobacco Splitworm. 7 pages. (Department Bulletin 59.)

A somewhat technical discussion of the tobacco splitworm, also known as the potato-tuber moth. This insect is generally distributed throughout the Southern States and has caused serious loss to tobacco growers in one locality in Florida. It has also caused severe losses of potatoes in California. Remedial measures are recommended for its control when infesting tobacco.

The Gypsy Moth and the Brown-Tail Moth, with Suggestions for Their Control. 24 pages, 10 illustrations. (Farmers' Bulletin 564.)

Corn Meal as a Food and Ways of Using It. 24 pages. (Farmers' Bulletin 565.)

White Pine Under Forest Management. 70 pages, 7 illustrations. (Department Bulletin 13.)

This bulletin summarizes the most important facts relative to white pine, with regard both to the original forests and to the second growth. Tables show the value of stumpage at prevailing prices and the profit or loss resulting from the management of second growth under favorable and unfavorable conditions. Methods are also suggested for securing successive crops and for increasing the quantity and quality of the yield.

The Migratory Habit of the Housefly Larvæ as Indicating a Favorable Remedial Measure. An Account of Progress. 11 pages. (Department Bulletin 14.)

This bulletin makes known a newly discovered habit of the housefly larvæ that can be utilized as the basis for a new method for a greater control of the housefly. It is of special interest to entomologists, sanitarians, and health officers.

Water Supply, Plumbing, and Sewage Disposal for Country Homes. 46 pages, 38 illustrations. (Department Bulletin 57.)

This paper treats of farm-home sanitation relating to water supplies, the safeguarding of the same against contamination, and the safe disposal of sewage; it is of interest to farmers in all sections of the country.

The Relation of Cotton Buying to Cotton Growing. 21 pages. (Department Bulletin 60.)

This bulletin investigates the relations existing between the cotton growers and the cotton buyers and manufacturers, in the hope of making clear to them that the present methods of buying tend rather to discourage the planting of better varieties, and the taking of those precautions which are necessary to produce superior fiber. The bulletin recommends certain reforms in the commercial world that would develop a better system of production than the present very defective one.

Potato Wilt, Leaf-Roll, and Related Diseases. 48 pages, 16 illustrations. (Department Bulletin 64.)

This paper is of interest to plant pathologists; it is suited to the potato-growing sections of the North, West, and South.

Cerebrospinal Meningitis ("Forage Poisoning"). 14 pages. (Department Bulletin 65.)

This publication gives information about a serious disease of horses; it is especially suited to veterinarians in the States west of the Mississippi River and in the South.

Pasture and Grain Crops for Hogs in the Pacific Northwest. 27 pages, 9 illustrations. (Department Bulletin 68.)

This publication is intended to encourage hog raising in the Pacific Northwest; it is especially adapted to Washington, Oregon, and Idaho.

Sugar-Beet Growing Under Irrigation. 26 pages, 5 illustrations. (Farmers' Bulletin 567.)

This bulletin considers the conditions and cultural methods employed in those areas where there is an insufficient rainfall for the profitable production of sugar beets, and is of interest mainly to residents of central, western, and southwestern portions of the United States. This area varies, shifting now east, now west, with the seasonal changes in climatic condition.

Sugar-Beet Growing Under Humid Conditions. 20 pages, 4 illustrations. (Farmers' Bulletin 568.)

The bulletin is of special interest to sugar-beet growers in the East, the Ohio Valley, the Upper Mississippi Valley, and the Lake Region, where the rainfall is such as to make irrigation unnecessary. The subject of sugar-beet growing in humid climate is entirely covered in this bulletin.

Tobacco Culture. 15 pages, 4 illustrations. (Farmers' Bulletin 571.)

Practical directions for making the seed bed, preparing the land, transplanting, cultivating, and harvesting the several classes of tobacco in the established tobacco-growing districts.

THE KEEPING QUALITY OF SWEET-CREAM BUTTER.

On February 17, 18, and 19, representatives of the department examined 219 samples of butter packed for the Navy Department during the spring and summer of 1913, and held in storage for a period ranging from 7 to 9 months. For several years the Navy Department has purchased annually from 500,000 to 700,000 pounds of butter packed in hermetically sealed tins for use on board its ships while at sea. In 1913, 500,000 pounds of such butter were made at 4 creameries, 2 of which were located in New York and 1 each in Pennsylvania and Minnesota. The butter was made during a period of 90 days between May 1 and August 20, according to specifications prepared by the Dairy Division, Bureau of Animal Industry, Department of Agriculture. The specifications required that the butter should be made from pasteurized cream containing not more than 0.234 per cent of acid for butter scoring 95 points, which quality was required for at least 70 per cent of the total amount packed. A water content of 13 per cent or less and a salt content between 2½ and 3¼ per cent were required. The butter was stored at a temperature of zero or below as fast as carload lots accumulated at the creamery. Inspectors working under the supervision of the Dairy Division were stationed at each of the creameries making this butter and made the tests for acidity in the cream and for the salt and moisture contents in the butter. The inspectors had authority and were directed to require strict compliance with the specifications. In order that the keeping quality of the butter might be determined and any necessary changes in the methods of manufacture noted, the inspectors were authorized to take a sample can from each day's make. These samples, containing 5 pounds each, were stored and held under the same conditions as the general supply. The examination of these samples was held on the days given above with the following results:

Creamery.	Number of samples.	Average score at time of packing.	Average score after storing.	Points lost in storage.
No. 1	23	95.000	93.355	1.645
No. 2	41	94.871	92.126	2.745
No. 3	64	94.840	92.070	2.770
No. 4	91	94.773	91.868	2.905

The results show that for storage purposes butter made in this way has exceptionally good keeping qualities, and confirms the opinion that for the requirements of the Navy Department butter made from sweet cream has no superior. The tin from which the cans were made was process-lacquered on both sides, and resulted in entirely preventing the development of rust which had shown to some extent in previous years.

The judges pronounced the butter to be of uniform quality and with no serious defects.

COUNTRY BOYS' CREED FOR YOUNG VIRGINIA FARMERS.

In every schoolhouse in Prince Edward County, Va., a placard containing a creed for the American country boy and dedicated to the Boys' Corn Club of Virginia has been posted. It reads:

"COUNTRY BOYS' CREED.

"I believe that the country which God made is more beautiful than the city which man made; that life out of doors and in touch with the earth is the natural life of man. I believe that work with nature is more inspiring than work with the most intricate machinery. I believe that the dignity of labor depends not on what you do, but how you do it; that opportunity comes to a boy on the farm as often as to a boy in the city; that life is larger and freer and happier on the farm than in the town; that my success depends not upon my location, but upon myself; not upon my dreams, but upon what I actually do; not upon luck, but upon pluck. I believe in working when you work and in playing when you play, and in giving and demanding a square deal in every act of life."

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., MARCH 25, 1914 No. 33

SHIPPERS OF INSECTICIDES AND FUNGICIDES FINED.

The Government has recently published notices of judgments secured against a number of concerns for violation of the insecticide act. Fines imposed on some of these are as follows:

$75.—Hemingway's London Purple Co., New York, N. Y., was charged with shipping a quantity of so-called "Pure Lead Arsenate" to Harrisonburg, Va. The product was alleged to be adulterated and misbranded in that it contained more than 50 per cent of water and that the package contained less than 25 pounds of the article, although the statement on the label assured the buyer that the article contained but 50 per cent of water and that each package contained 25 pounds of the product.

$50 and costs.—The Kibler-Lieber Chemical Co., Indianapolis, Ind., was charged with shipping a quantity of so-called "Strictly Pure Arsenate of Lead" to St. Louis, Mo., which was adulterated and misbranded in that lead arsenite and water-soluble salts other than lead and arsenic compounds had been mixed with it, thereby affecting its quality and strength, in that each barrel did not contain 600 pounds of lead arsenate, the article was not "Strictly Pure Arsenate of Lead," and it contained less than 15 per cent arsenic oxide and more than three-fourths of 1 per cent water-soluble arsenic oxide, the amounts claimed on the label.

$25 and costs.—The Tropical Oil Co., Cleveland, Ohio, was charged with shipping a quantity of so-called "Rexo Dip." It was alleged that the article was adulterated and misbranded, because the label stated: "A sample of this product has been submitted to the Department of Agriculture for examination. We guarantee the contents of this package to be of the same composition as the sample submitted to the department, and that when diluted according to the directions printed hereon for the treatment of sheep scab it will give a dipping fluid of the composition required of a coal-tar creosote dip by the regulations of the Secretary of Agriculture governing sheep scab." The article shipped was not of the same composition as that of the sample submitted by the manufacturer for approval for official dipping of sheep, and when diluted in the proportion of 1 part to 73 parts water would not give a dipping fluid of the composition required of a coal-tar creosote dip by the regulations of the Secretary of Agriculture governing sheep scab. Misbranding was further charged because of false and misleading statements on the label to the effect that the product was nonpoisonous, that it would positively kill all vermin and parasites of every description, that it would prevent cholera in swine, and also because it consisted of an inert ingredient, water, and the name and percentage amount of such inert ingredient were not stated on the label, nor in lieu thereof were the name and percentage amount of each active ingredient and the total percentage of the inert ingredient stated on the label.

$25.—The Portland Seed Co., Portland, Oreg., was charged with shipping a quantity of so-called "Aphiscide" to Vancouver, Wash. It is alleged that the article was misbranded. The article on examination was found to contain about 99 per cent water, and was not effective against certain plant pests as the label maintained. Misbranding was alleged because the label falsely claimed the product would kill all plant pests, and that it was the most effective insecticide known, and because it consisted partially of inert substances, principally water, which do not prevent, destroy, repel, or mitigate insects, and the names and percentage amounts of such ingredients were not stated on the label, nor in lieu thereof were the name and percentage amount of each active ingredient and the total percentage of the inert ingredients stated on the label.

$20.—Roberta K. Good, Philadelphia, Pa., was charged with shipping so-called "Fish Oil Soap" to Nashville, Tenn. The label stated that it contained 63 per cent of fish oil, whereas analysis showed less than that amount present. The product was alleged to be adulterated because it fell below the professed standard, and misbranded in that it was labeled so as to deceive or mislead the purchaser.

$10 and costs.—The Kentucky Tobacco Product Co., Louisville, Ky., was charged with shipping a quantity of "Nico-Fume Liquid" to Baltimore, Md. Examination showed that the cans contained considerably less than the proportion of nicotine, and considerably more than the proportion of inert ingredients stated on the label. It was charged that the product was adulterated because it fell below the professed standard. Misbranding was alleged in that it was labeled so as to deceive or mislead the purchaser, and in that the presence of inert and active ingredients was not plainly and correctly disclosed on the label.

AMERICAN TOBACCO INDUSTRY HIGHLY SPECIALIZED.

Each important tobacco district of the United States produces a type of tobacco for special purposes of manufacture or export. The methods of growing and handling a crop must vary according to the type of leaf desired, and therefore according to the particular districts where it is grown. The department has just issued a bulletin on "Tobacco culture," which recommends methods for the production of various American types.

The bulletin emphasizes the fact that overproduction is a constant menace in all the established centers of tobacco growing, and that the development of the industry in new sections on a large scale is hardly advisable at present. Another reason why tobacco

culture in untried sections may result in failure is that the leaf produced will not be quite right in type, and therefore it will not find a satisfactory market.

The commercial value of tobacco is influenced to a greater degree by particular soil and climatic conditions than is that of almost any other important crop. This has caused the industry to become highly specialized, and the trade looks regularly to well-defined areas for the various types of leaf it requires.

As tobacco grows readily over so large an area it is not strange that many farmers experiment with it and often secure seeming success; that is, the plants grow readily, but when it comes time to sell the crop the farmer can find no market.

"I have grown five acres of tobacco," a farmer writes from a district where tobacco is not grown for the commercial trade. "But there seems to be no market. Can the Department of Agriculture help me?"

The department can only advise this farmer that conditions are such that even though his product appears to be of good quality, he will probably be unable to market it, as the trade does not recognize his section as a tobacco-producing area. Here we have the difference emphasized between tobacco and a crop like corn, for which a market may readily be found no matter where it is grown if the quality is good.

Detailed information regarding insects attacking tobacco and methods of combating them, can be found in Farmers' Bulletin 120, entitled "The Principal Insects Affecting the Tobacco Plant." The new bulletin, Tobacco Culture, is Farmers' Bulletin 571, and either of these publications may be obtained free by application to the United States Department of Agriculture, Washington, D. C.

COOPERATIVE PURE-BRED CATTLE SALES.

One of the most important effects of the eradication of the Texas fever cattle tick in the South and the consequent release of large areas from quarantine has been the development of a demand among farmers in the released area for pure-bred cattle to improve their native stock, especially beef cattle. Many requests have reached the department for assistance in obtaining such animals. Farmers in this territory often do not know where or how to buy and do not feel confident in their own judgment as to what to buy. To meet the situation the Bureau of Animal Industry recently suggested a cooperative arrangement between breeders' associations and the farmers' cooperative demonstration work of the department, whereby sales could be held at which purchasers could be assured of fair dealing.

The plan suggested provided that the association cooperating would hold sales in southern territory as an association, that it would guarantee all animals offered, and would assume all responsibility for them and all expenses connected with the sales. The department in turn would furnish information concerning the sales through agents and demonstrators of the farmers' cooperative demonstration work stationed in the South.

This plan was approved by the Secretary of Agriculture, and the first association with which it was put into effect was the American Aberdeen-Angus Association. The first sale by the association under the cooperative plan was held at Montgomery, Ala., on February 3, and was a decided success. The cattle were not immune to Texas fever and had not been inoculated, but went to farms which are free from tick infection. The association is so well satisfied with its initial experiment that it is planning other sales to be held at other points under the same arrangement.

The department believes that this arrangement will not only be of great value to Southern farmers in improving their live stock, but that it presents an added field of usefulness for a breeders' association by broadening in a perfectly legitimate way the market for animals owned by its members. It is hoped that arrangements similar to that now in effect with the American Aberdeen-Angus Association may be perfected with other live stock breeders' associations.

DIFFICULTIES EXPERIENCED IN PREPARING CROP REPORTS.

The crop reporter finds the least difficulty, as a rule, in reporting on those crops most largely grown in his own neighborhood. The facts as to these, besides coming under his own observation, are the subject of frequent discussion among his neighbors. He is, therefore, well informed on these crops, and his report, representing his best judgment, will usually be close to the facts.

Difficulty is experienced, however, in reporting on crops grown only to a small extent in his neighborhood and with which he is not sufficiently familiar to form a personal opinion. In this case he must depend upon the judgment of those who grow the crop, and if this can not be obtained it will be better to omit making an estimate. The department will be likely to receive full reports from those sections where the particular crop is largely grown, which sections, in the end, determine the production of the crop. No attempt should be made to report crops grown in an experimental way, as the neighborhood production will be insignificant, and in the absence of knowledge of the normal behavior of the crop, under local conditions, there exist no means of estimating the degree of departure from the normal; that is, the per cent condition compared with the normal.

ALFALFA NOT A CURE-ALL FOR EVERY FARM AND IS NOT SUITED FOR ALL SOILS AND DISTRICTS.

Many farmers have been led through the excitement produced by alfalfa trains, and other promotion methods, to plant alfalfa when they never should have attempted it, according to specialists of the Department. These specialists feel that there has been an unnecessary amount of talk about alfalfa and too little actual attempt to demonstrate the limitations that exist with reference to growing that crop. As a result the department, while it is helping farmers to cultivate alfalfa and other leguminous plants by preparing bacterial cultures, is also cautioning its demonstration agents to teach the farmer to grow alfalfa where it is desirable to have it taught and where there is promise of success. These demonstration agents are particularly warned not to encourage individual farmers to grow alfalfa unless the climate and other conditions and the soil of the special farm fully warrant the experiment which involves an investment for seed and cultivation, and if the crop is not successful means a waste of the land over a growing season. The question of whether alfalfa will grow is not a simple problem, but involves frequently a complicated group of problems which have to be considered from several different angles and by several different groups of specialists. Mere examination of the soil will not show what is going to happen with alfalfa. The only way to discover whether or not it will grow is to try it inexpensively in an experimental plot, get certain general facts in mind, and then extend the experiment to promising local farms with the help of the farmer himself.

Only recently the department had requests for 50,000 to 60,000 pounds of alfalfa seed for distribution to some fifty or sixty thousand farmers. If the department had acceded to this request, it very easily might have encouraged the farmers in that region to spend additional money for seed when they should not have undertaken the culture of alfalfa at all. The mere furnishing of seed is only the first step, because its successful cultivation calls for special methods of soil preparation, inoculation, and many other matters not commonly understood by those who have had no experience with this forage and cover crop.

Alfalfa where it can be grown properly is undoubtedly of much value to the farmer. In regions where it is already grown the farmer can gain valuable advice by consulting those who are already growing it successfully. Before becoming a pioneer in alfalfa raising in his district, however, the farmer would do well to consult with his State experiment station and so gain all possible information that will help him to make a success, or else obtain information that will show him fully the danger of attempting to raise alfalfa and make clear to him exactly the risk of money, time, and use of land he is taking in attempting the experiment.

SOME SPECIAL USES FOR CORN MEAL.

The peculiar consistency of corn meal, which is a disadvantage under some circumstances, is an advantage in making griddlecakes or waffles, for it renders them very tender. Among the many recipes which the new farmers' bulletin (No. 565, Corn Meal as a Food and Ways of Using It) recommends are the following:

CORN-MEAL PANCAKES.

2 cups flour.
One-half cup corn meal.
1½ tablespoons baking powder.
1½ teaspoons salt.
One-third cup sugar.
1½ cups boiling water.
1¼ cups milk.
1 egg.

Add meal to boiling water and boil five minutes; turn into bowl, add milk and remaining dry ingredients mixed and sifted, then the egg well beaten, and butter. Cook on a greased griddle.

CORN MEAL AND WHEAT WAFFLES.

1½ cups water.
One-half cup white corn meal.
1½ cups milk.
3 cups flour.
3 tablespoons sugar.
1¼ tablespoons baking powder.
1½ teaspoons salt.
Yolks 2 eggs.
Whites 2 eggs.
2 tablespoons melted butter.

Cook the meal in boiling water 20 minutes; add milk, dry ingredients mixed and sifted, yolks of eggs well beaten, butter and whites of eggs beaten stiff. Cook on a greased waffle iron.

INDIAN PUDDING.

5 cups milk.
One-third cup corn meal.
One-half cup molasses.
1 teaspoon salt.
1 teaspoon ginger.

Cook milk and meal in a double boiler 20 minutes; add molasses, salt, and ginger; pour into buttered pudding dish and bake 2 hours in slow oven; serve with cream.

CORN MEAL AND FIG PUDDING.

1 cup corn meal.
1 cup molasses.
6 cups milk (or 4 of milk and 2 of cream).
1 cup finely chopped figs.
2 eggs.
1 teaspoon salt.

Cook the corn meal with 4 cups of the milk, add the figs and salt. When the mixture is cool, add the eggs

well beaten. Pour into a buttered pudding dish and bake in a moderate oven for 3 hours or more. When partly cooked, add the remainder of the milk without stirring the pudding.

CORN MEAL AND APPLE PUDDING.

For the figs in the above recipe substitute a pint of finely sliced or chopped sweet apples.

* * * * *

It is often possible to substitute corn meal for part of the flour in making cakes. In some cases there is no special advantage in using it, but it is well to know that it can be used in emergencies. In making doughnuts, however, there is a decided advantage in substituting corn meal for part of the flour, for doughnuts so made are more likely to be tender.

INDIAN-MEAL DOUGHNUTS.

Three-fourths cup milk.
1½ cups very fine white corn meal.
1¼ cups wheat flour.
One-fourth cup butter.
Three-fourths cup sugar.
2 eggs well beaten.
1 teaspoon cinnamon.
2 teaspoons baking powder.
1 level teaspoon salt.

Put milk and meal into a double boiler and heat together for about 10 minutes. Add the butter and sugar to the meal, Sift together the wheat flour, baking powder, cinnamon, and salt. Add these and the eggs to the meal. Roll out on a well-floured board; cut into the desired shapes; fry in deep fat; drain and roll in powdered sugar.

CORN MEAL MUSH.

Corn meal, because it requires long cooking, is peculiarly adaptable for preparation in the fireless cooker. In cooking corn meal in the fireless cooker, 5 hours at least should be allowed.

A recipe for corn-meal mush made in the fireless cooker is as follows:

1 cup meal.
1 teaspoon salt.
4½ cups water, milk, or milk and water.

Mix the ingredients and bring them to the boiling point. Place the pail in the cooker and leave for from 5 to 10 hours.

ZUNI INDIAN BREAD.

1 cup white corn meal.
1 cup yellow corn meal.
1 cup water.
1 teaspoon salt.
One-eighth teaspoon cayenne.
1 cup chopped suet.

Mix all well together; form into rolls about 5 inches long; roll in greased paper; and bake in a moderate oven 1 hour. Serve hot.

SOUTH CAROLINA CORN BREAD.

1½ quarts fine corn meal.
2½ quarts wheat flour, (or
2½ quarts fine corn meal.
1½ quarts wheat flour).
2 teaspoons salt.
1 pint mashed sweet potatoes.
1 cake yeast.

Mix 1 pint each of the corn meal and the flour and add warm water enough to form a stiff batter. Add the yeast cake, mixed with a small amount of water. Keep this sponge in a warm place until it becomes light. Scald the meal with boiling water and as soon as it is cool enough add it to the sponge.

CORN-MEAL SCRAPPLE.

1 pig's head split in halves.
2 cups corn meal.
Salt and sage.

Cook the pork in water until the meat can be easily removed from the bone. Remove the meat, cool the broth, and remove the fat. Reduce the broth to about 2 quarts or add water enough to bring it up to this amount, and cook the corn meal in it. Add the meat finely chopped and the seasonings. Pack in granite bread tins. Cut into slices and fry.

CORN-MEAL FISH BALLS.

2 cups cold white corn-meal mush.
1 cup shredded codfish.
1 egg.
1 tablespoon butter.

Pick over the codfish and soak it to remove salt, if necessary. Combine the ingredients and drop by spoonfuls into hot fat. Drain on porous paper. These codfish balls compare very favorably in taste with those made with potato and are more easily and quickly prepared.

HOW TO KEEP BOOKS ON THE FARM.

A new bulletin which should be of interest to farmers throughout the country has just been published by the department, entitled "A System of Farm Cost Accounting" (Farmers' Bulletin No. 572).

No previous knowledge of bookkeeping is necessary to understand the system outlined, and if the farmer follows the suggestions he will find them of value in estimating the profits or losses on his business every year. The system as described has been tried for three years in New York by 53 farmers and under various conditions. The bulletin may be had free on application to the department as long as the supply lasts.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., APRIL 1, 1914 No. 34

TO IMPROVE AMERICAN WOOL BY AUSTRALIAN METHODS.

If American wools were sent to market graded and put up as attractively as are Australian wools, it is estimated that an increase in price of as much as 3 cents a pound might be received by the grower. Wool growers, dealers, and manufacturers generally admit that the American system (or lack of system) is very bad, and at the annual meeting of the National Wool Growers' Association in Salt Lake City, Utah, considerable interest was shown in the proposal to adopt the Australian method of putting up wool. Three cents a pound upon wools selling at from 15 to 30 cents a pound is a very high percentage of loss, which can and doubtless will be prevented by growers in the future. The growers' gain in this particular is in no way opposed to the interests of the dealers or manufacturers.

The Bureau of Animal Industry has prepared a collection of American and Australian wools for use in educational work in this direction. This exhibit includes samples of various grades of wool, showing how grade and value may be determined by factors under the control of the sheep raiser.

ADVANTAGES OF AUSTRALIAN METHODS.

Australian and New Zealand wools are graded or "classed" at the time of shearing. They are also shipped in bales instead of sacks. The "wool classers" who do their work at the shearing plant are familiar with the basis of grading wool for manufacturers' uses. No bale contains more than one grade of wool, and any one bale is a true representative of others of the same grade shorn from the same flock. In many instances the fleeces are also "skirted." Skirting is the removal from the fleece of that part of the wool shorn from the legs and belly. Such skirtings contain most of the dirt and foreign matter present in the fleece and when baled and sold separately bring their actual value and do not detract from the appearance and uniform character of the body wool.

Quite frequently the bodies of Autralian fleeces are held together by a roll twisted from the fleece itself and which serves to keep the fleece intact while being placed in the bale and after the bale is opened at the market, thus avoiding possibility of injury from the use of unsuitable twine.

Only a small proportion of American woolgrowers separate their wool into grades before sacking for shipment. Unless the flock is of very uniform character the sacks of wool must be opened at the warehouse and their contents graded before being offered for sale. Skirting is never done in America and on the majority of ranches the tags or dung locks are left with the fleeces.

The breeding of the sheep is of first importance in determining the grade of the wool. Woolgrowers, as a rule, are not familiar enough with the commercial grading of wool to understand into which of the grades the fleeces of a particular breed of sheep would be placed. Aside from the matter of grade, the value of wool is controlled to a great extent by the feed supply and methods of herding the sheep on the range. Lessons upon these points as well as upon the handling of the shorn wool can be brought home by the exhibit that has been prepared by the Bureau of Animal Industry. It is not too much to expect that in the next decade improved business practices will add over 10 per cent to the returns received for wool by sheep raisers.

STUBBLING IN OF GRAIN UNPROFITABLE.

The stubbling in of grain is being practiced more or less in the wheat sections of the Northwest. By stubbling in grain is meant the seeding of grain on fields that have not been plowed since the removal of the previous crop. There are apparent advantages and disadvantages in the practice. The advantages lie in the saving of time and equipment in plowing, in the plumper and better quality of kernels and in the larger area that may be covered. The disadvantages are that the yields, on an average, are about one-third less and occasionally both seed and labor are thrown away. The straw is commonly shorter and in an adverse year is hard to bind into firm bundles that will not scatter. The fields dry out quicker than on plowed ground and are harder to plow the following year while the physical condition of the soil is not as good for the subsequent crop. Weeds, notably Russian thistles and tumbling mustard, are much more numerous on stubbled in fields, as are also insects in some cases. The reflections upon one's credit and standing as a farmer must also be listed among the disadvantages.

In response to inquiry sent out by the Office of Farm Management 144 farmers in widely scattered parts of North Dakota stated that the stubbling in of grain was practiced in their vicinity. The experience and observation of 87½ per cent of these men caused them

to declare unfavorably toward the practice. Ten and one-half per cent qualified their statements and specified the particular conditions under which satisfactory results had been obtained. The remaining 2 per cent did not declare either for or against.

The qualified statements concerning the practice are as follows: If the ground has been deeply spring plowed the year before and is rich, loose, free from weeds and sown early, stubbling in is all right. In a few instances where the stubble was burned off in the spring better results were secured than where the stubble was not burned. A few indorsed press drills for this work.

From the evidence of these farmers it would seem to be generally unwise to follow this practice. If farmers would use foresight in planning their year's work the stubbling in of grain would rarely be necessary. The practice is usually followed because more work has been undertaken than could properly be accomplished in the time available. A better understanding by farmers of the average length of season and the average day's work would tend to greatly reduce the number of cases where stubbling in would be necessary.

CORRECTION AS TO NEW SYSTEM OF COTTON CULTURE.

Through an editorial oversight, the words "increased earliness" appearing in the article "A new system of cotton culture," published in the News Letter of March 11, were changed to read "earlier planting." The paragraph in question should have read:

> Increased earliness is a means of securing larger yields in regions where the period of crop production is limited either by short seasons or by the presence of the boll weevil. Greatly increased yields have been secured in this way, even as high as 50 per cent.

Increased earliness in this connection refers to an earliness of maturity which is accomplished by intensive and specialized cultural methods though the planting of the crop is not made until the weather and soil conditions are favorable for the growth of the crop. Early planting of cotton under unfavorable soil and weather conditions, frequently encountered early in the season, may result in heavy losses. The department for several years has steadily cautioned planters against undue earliness of planting for this reason.

Any planters interested in the new system of cotton culture are again invited to apply to the Bureau of Plant Industry for its circular on the subject, which will be supplied free.

IMPROVED METHODS OF COTTON SELECTION.

The so-called "running out" of varieties of cotton is largely due to the neglect of the grower in selecting his seed. Continued selection is necessary to maintain the uniformity and productiveness of any variety of cotton, but the methods of selection used in the past were such as to require so much time and technical skill as to be impracticable for the farmer.

Simpler and more effective methods have been developed and explained in a circular entitled "Cotton Selection on the Farm by the Characters of the Stalks, Leaves, and Bolls." This is supplied free of charge by the Bureau of Plant Industry to interested growers.

Farmers who will limit themselves to the growing of one kind of cotton and take the necessary precautions to preserve the stock and avoid admixture with other varieties, can produce better seed than they can buy through any of the existing commercial channels. They can not only increase their own crops but gain additional profits by selling seed to their neighbors. The demand for better seed is now very general and represents an important opportunity for the more intelligent farmers of each community.

DANGEROUS COTTON PEST FROM EGYPT REFUSED ADMITTANCE.

The Federal horticultural board has intercepted a shipment of cotton seed from Egypt which was found to be heavily infested by the so-called pink boll worm. This is a result of the quarantine against cotton seed which was promulgated by the board some time ago. The seed, which was intended for planting in Arizona, arrived in Boston, where the customs officials, under instructions from the board, obtained possession of it.

The pink boll worm is the most serious cotton pest in Egypt. In that country it does as much damage as the boll weevil in this country. The possibility of reducing the damage it causes has been considered by governmental commissions and conferences for several years. Like the boll weevil, it works for the greater part of its existence within the bolls. Frequently it makes its way inside the seeds, where it can live for an indefinite time. In fact, in experiments performed in the ministry of agriculture in Egypt it was found that the worms have lived for as long as seven months in seed in storage.

APRIL LIVE-STOCK REPORT.

SUGGESTIONS TO CROP REPORTERS.

The April report on mortality of live stock is one of the most difficult from the point of view of the average reporter, because he lacks personal knowledge concerning a sufficient number of animals of each class to permit him to form unaided an opinion satisfactory to himself.

If each reporter will make inquiry of (say) 10 or 20 stock owners among his neighbors he can obtain information of the approximate number of each class of farm animals owned and of the total losses, and from this determine the loss per thousand. It is not expected that these estimates will be an absolute

census; their purpose is to indicate in a general way, at the close of winter, the condition of live stock and the losses during the year from disease and exposure. Any marked deviation from the usual annual loss or from normal healthfulness will be known to the reporter, and experience shows that not only is the fact of such departure from the normal reflected in the reports received by the Bureau, but that its approximate degree is indicated.

The presence and intensity of epidemics, as of hog cholera, among the farm animals, the spread of such epidemics to adjoining States, the approximate extent of the resulting financial loss to the farmer and the Nation, and related facts, are reflected in these figures. The data obtained give a good general survey of the live-stock situation, and by furnishing a record for comparison with past and future years, afford a basis for conclusions important to the live-stock interests and to the welfare of the Nation.

THE SOUTH AS A FIELD FOR BEEF PRODUCTION.

The geographical location and the climatic conditions of the South are such as to make it a good section for cattle raising. The soils are so varied that what may be said in a general way will not hold true for all places or sections of this large area. They vary from light sand to heavy clay, or to the black prairie soils, or the stiff post oak. As a rule the stiffer the soil and the greater the content of lime in the soils the more nutritious the grasses are and the greater is the variety of clovers which will grow.

The Piedmont section of Virginia, West Virginia, western North Carolina, Tennessee, and northern Alabama is a fine grazing country, and thousands of good beef cattle are found there. The Shorthorn is more popular than any other breed in this region, and they do exceedingly well. The grazing plants are chiefly blue grass, white clover, red clover, redtop, and orchard grass. The cattle fatten very rapidly during the grazing season and raise excellent calves. Most of this region is free of ticks, and the losses from death are relatively small.

The black prairie section of Alabama, Mississippi, and Texas, and the Delta lands of Mississippi and Louisiana, are extremely favorable sections for raising and finishing beef cattle. Experiments conducted by the Bureau of Animal Industry and the Alabama Experiment Station show that cattle when kept free of the cattle tick can be raised at a cost of 3 to 4 cents a pound. This cost includes the keep of the cows for one year, charges for pasture and all feeds consumed at market prices, depreciation in the value of the herd, and 6 per cent interest on the money invested. The principal native grasses which are indigenous to these soils are Bermuda, Johnson grass, Lespedeza, and Melilotus; but red clover, alsike clover, bur clover, and white clover grow readily when planted in the pastures, and the grazing season can be extended greatly by their use. Alfalfa, soy beans, cowpeas, corn, sorghum, and other forage crops do well on these lands and produce an abundance of roughage and hays for wintering and fattening the cattle. The red clay soils produce crops very similar to those mentioned for the prairie soils.

There are great areas of "cut-over" lands in the South that range in price from $2 to $10 per acre which could be used for beef production. The soil of such lands is usually sandy or post-oak, neither of which are as good for grazing as the prairie or delta lands, but which would furnish good grazing if a little care was taken in getting pasture plants started. On these soils carpet grass, Bermuda, Lespedeza, white clover, red top, *Paspalum dilatatum*, and bur clover do exceedingly well. The carpet grass furnishes abundant grazing on the sandy lands while the bermuda does better on the soils which are a little stiff. The paspalum, white clover, and red top do well on the damp lands, and if some lime is present alsike clover will furnish fine grazing. The foundation of all pastures on sandy or sandy loam lands should be carpet grass, bermuda, and lespedeza. The variety of forage crops which may be raised on this type of soils is large, and it is an easy matter to grow all the hays, silage crops, and forage necessary for feeding the stock which may be kept on the farm.

One of the greatest drawbacks to the cattle industry of the South has been the presence of the cattle tick that transmits Texas fever, which kills many of the cattle and stunts others in growth. The tick is rapidly being eradicated, and it is only a question of time until the South is freed of this pest.

The native cattle of the South are cold-blooded scrubs carrying a variable percentage of Jersey blood. They are small in size and inferior in quality, but they have stamina and the cows produce good calves when bred to a beef bull. Some of these cows weighing not over 600 pounds have given birth to half-breed calves which have developed into 500 to 600 pound animals at 12 to 13 months of age.

They usually weigh about 800 to 850 pounds at 2 years of age when raised under average southern farm conditions. The half-breed calves do not fatten out as well as calves of a higher grade, but if permitted to grow until 2 or 3 years of age they finish out as very good beef animals. The half-breed heifers when bred to beef bulls usually produce excellent calves.

No section of the country can raise cattle as cheaply as the South, and the variety and prices of feeds are such that the animals can be economically finished for the market. The forage plants, especially sorghum and corn, make such a luxuriant growth in the south-

ern latitudes that large yields of silage can be produced per acre. The silage is an excellent feed for wintering the breeding herd, or for finishing the animals for the market. The use of silage in a fattening ration almost invariably increases the size of the daily gains, cheapens the gains, lengthens the period during which cattle can be fed cottonseed meal economically and without danger, and results in better finish, fatter cattle, and greater profits per head. The leguminous hays as alfalfa, cowpea, lespedeza, red clover, and vetch, and the corn stover and oat straw are good rough feeds to use in conjunction with silage.

The Shorthorn, Aberdeen-Angus, Hereford, Red Polled, and Devon breeds of cattle all do well in the South. The Shorthorn does well on all lands where the pastures are good and feed is plentiful. The cows usually prove to be very good milkers, giving milk enough for the calf and to supply the home as well. The result of the good milking qualities of the cows is usually a good growthy calf. The Herefords and Angus are good grazers and will do well under range conditions, as well as on the small farm. The Hereford stands ahead of all breeds as a range animal, but the Angus have the advantage over all breeds in the feed lot, as they finish out very smoothly, are high in quality, and kill out a high percentage of marketable meat. The Devon is slower of growth than the other breeds, but are great rustlers and fatten on pastures which are so thin that some of the beef breeds could hardly subsist. The Red Polled is a dual purpose breed which ranks next to the milking strain of Shorthorns in the production of milk and beef. They are not as well known, nor as popular as the Shorthorn, but have done well wherever tried in the South. Any of the breeds cross well with the native cattle, and can be used advantageously in breeding up the scrub herds.

By the eradication of the cattle tick, the use of good, pure-bred beef bulls, the improvement of the pasture lands, and a closer study of the cattle business, the South will develop into a great cattle-raising section, and should contribute largely to the supply of meat in the next two decades. In no case should high-priced, high-bred stock be brought from tick-free territory until the farm upon which they are to be kept has been rid of ticks.

IMPORTED RED CLOVER SEED.

The seed importation act of August 24, 1912, does not directly prohibit the importation of seeds on account of low vitality. It does, however, prohibit the importation of those seeds mentioned in the act when they contain 3 per cent or more of weed seeds. As red clover seed, which germinates poorly, usually contains more than 3 per cent of weed seeds the enforcement of the act has resulted in keeping red clover seed of low vitality out of the country.

During the last four months 101 lots of red clover seed, aggregating over 3½ million pounds, have been imported into the United States. Germination tests of this seed made by the seed laboratory of the United States Department of Agriculture show an average of 97 per cent of live seed, the poorest lot containing 89 per cent. This is in marked contrast to the condition which existed in 1906. One million pounds of the red clover seed imported that year germinated less than 59 per cent.

AN EFFICIENT FARM SYSTEM FOR THE CORN BELT.

According to the report of an investigator of the Office of Farm Management, an efficient system for the corn belt must distribute the labor well throughout the year and eliminate the greater part of the rush work during crop-gathering period by harvesting most of the crops with live stock, principally swine.

It is possible on most farms to grow a greater acreage of crops than can be harvested with the regular working force. The work that the hogs are able to do by this plan relieves the congestion when outside labor is most needed and makes it possible to handle a greater acreage, thereby increasing the size of the business and the net income.

The system in itself is simple. There are only three crops grown—corn, rye, and a mixture of clover and timothy. These are generally run in a four-year rotation, as follows: First year, corn (hogged down); second year, corn (crop cut and rye sown); third year, rye (pastured and hogged off); fourth year, clover and timothy (hog-pastured and cut for hay).

The hogs are turned in on the rye field early in the spring and allowed to pasture that crop until about the 10th of May. Then they are turned in on the clover field, where they remain until about July 15. By that time the rye will have been ripe for about two weeks. The hogs are then turned in on the ripe rye to gather that crop and to graze the young clover which has grown up therein.

Six 100-pound hogs will gather a 17-bushel-per-acre crop of rye in six weeks. Timed in this way, the rye crop will be gathered by September 1. As soon as the hogs can be brought to a full feed on corn they are turned in on the first-year corn and allowed to gather that crop also. Thus three crops of the four are gathered by the hogs, and the fertility contained in these crops is returned immediately to the soil.

The labor conditions that prevail, and are growing still more serious, will doubtless make it necessary to reorganize after some similar plan not only a large number of the farms in the corn belt but in other sections as well.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., APRIL 8, 1914 No. 35

MALARIA MOSQUITO ADDS TO DAMAGE OF COTTON BOLL WEEVIL.

Malarial mosquitoes are not only causing tremendous annual losses in farm labor and production in the South, but are indirectly increasing the destructiveness of the cotton boll weevil. This statement follows a study of a mosquito-infested plantation in Louisiana made during the last cotton and corn crop season by specialists of the Bureau of Entomology as a preliminary to a more extended investigation of the effect of malaria on farm production and profits.

On this single farm the specialists found that malaria so affected the workers that the equivalent of 7.39 weeks of work by adult labor were lost per family during the seasons when crops were under cultivation. This does not include the lessened efficiency of convalescents or the lack of interest and energy resulting from malarial illness.

The Louisiana farm selected for the experiment contains 3,540 acres, of which 1,800 acres was under cultivation and 1,740 acres was in swamp-land timber. The natural conditions on the plantation, it is believed, prevail on nearly 200,000 square miles of farming land in the South. Of the tilled acreage about 1,600 acres were cultivated by tenant farmers who took three-fourths of their yield if they supplied mules, seed, implements, and feed, or one-half of their yield if the plantation owner supplied these items. The balance of the cultivated acreage was worked with day labor at $1 per day.

The plantation physician stated at the beginning of the survey that fully 75 per cent of the families on the plantation were afflicted with malaria and at least two members of every afflicted family had the disease in a serious form at some time during the crop season. Nine out of every ten patients in his practice, he said, were malarial subjects. A study of the records of the plantation show that 46 out of 64 families were treated for malaria by the doctor during the past season. This number is probably too low, because many families try to avoid the cost of medical attendance, and the negro has a natural aversion to proper medical treatment.

EFFECT OF MALARIA ON EFFICIENCY.

The manager of the property states that an estimate based on actual loss of time which would place the loss to the plantation owners from reduced production at $3,835 and to the tenants at $1,115 would be very low. This would mean that if the loss were prevented there would be an increased income of $24 per family for each of the 46 malarial tenant families, together with the above increase in returns to the plantation. This manager is positive that 50 families, or possibly even as few as 40 families, without malaria could have produced as much as the 64 families under the malarial conditions that prevailed.

The manager of another plantation, which raises rice, states that the labor problem, because of malaria, is acute at the time of planting and during the harvest season. He says that "chills" are particularly serious during the harvest season and that the labor force then becomes greatly reduced. In 1912 he had to go outside his district for hands and recruited 35 men. These men were all in healthy condition and worked well for two weeks. At the end of this time they began to have "chills," and before the end of the harvest 20 out of 35 were incapacitated for work. All these men returned to their homes. In 1913 the same man sought to recruit men from the same place to harvest the rice crop, but they refused to come. They stated that their physician advised them not to go to the rice fields. This physician informed the manager that these men who worked for him during the previous season returned to their homes unfit for work in the cane during the grinding season and that he advised them not to go north to the rice fields. Another manager of a cane plantation also stated that men who had worked in the rice fields were unfit on their return home, because of malaria, to work in the cane fields.

MALARIA AND BOLL-WEEVIL INJURY.

An important observation made in this region by the investigator during the past season is that portions of the loss through injury by the boll weevil must be debited to malaria. Under normal conditions the loss of time is not always so serious a matter, after the cotton crop is laid by and before time of picking. Under boll-weevil conditions, however, both loss of time and decreased efficiency become more serious throughout the entire season. Failure to keep up with the crop—that is, to plant at the right time, to give the crop good cultivation, and to carry out control measures for weevil—gives the weevil an advantage over the plant. Many of the tenants are incapacitated by malaria at these critical times in the culture of the crop. The owner of one plantation said that the loss sustained through malaria far exceeds that of the boll weevil. In the case of the boll weevil,

only one crop suffers, while in the case of malaria not only all crops, but all agricultural development as well, suffer.

SUGGESTED REMEDY FOR THIS LOSS.

The investigators found that the mosquito which was the cause of malaria on the plantation studied was the *Anopheles quadrimaculatus* Say, one of the species of *Anopheles* known to carry malaria. *Anopheles* can be distinguished from other mosquitoes in the following way: The wings of the malaria-carrying mosquitoes are more or less spotted. The projections on either side of the beak are nearly as long as the beak itself. The easiest way to distinguish the malarial mosquitoes is by observing their resting position. *Anopheles* when biting has its beak and head and body in the same line at an angle from the human skin. Nonmalarial mosquitoes keep the body and wings parallel with the resting place, and the beak is at an angle with the body, like the letter "L" laid on its side.

On the plantation in question this malarial mosquito was found in the house and frequently in the mosquito bars over the beds in the negro cabins. As a result of this study the investigators do not believe that the screening of negro cabins would be effective, because the negroes are careless about keeping mosquitoes out of their houses, and the presence of a malaria-carrying mosquito screened in with a malarial subject would practically insure the infection of the entire family. Negroes are usually careless about going out after nightfall. Outside of work hours, on holidays, or at night, the negro farmer is apt to be at a lodge meeting, at the store, at church, in a saloon, or in the cabin of some friend—in fact, any place except his own home. This habit of congregating at night outside of their own cabins would practically offset any protection to them through screening of their dwellings. The tendency of the negro to move about from place to place and his aversion to proper medical treatment, especially a prolonged course of quinine, renders the successful treatment of the disease with quinine impracticable. Reduction of malaria, the report concludes, depends upon the control of the mosquito carriers of the disease. In the ultimate control, drainage will probably play the greater part.

HOW TO PRODUCE GOOD SEED IRISH POTATOES.

This is the season of the year when the farmer should pay particular attention to seed potatoes, and the use of high-grade seed would increase the returns from the potato crop of the country by many millions of dollars. A conservative estimate of the increase that might be expected from the use of high-grade seed is certainly not less than 10 per cent. Such an increase based on the average production of the past five years would amount to over 34,000,000 bushels, having an approximate value of $21,000,000. Of the many causes which operate to produce a low average potato yield in this country, pure seed is an important one. The American potato grower pays too little attention to his seed potatoes.

The European growers, especially those of Great Britain and Germany, pay very strict attention to the quality and quantity of the seed they use.

By far the simplest and most promising means of developing high-grade seed potatoes is that of the tuber-unit and hill-selection methods. The former consists in selecting from the seed bin before planting time a considerable number of the most perfectly shaped tubers of from 6 to 8 ounces in weight. When planted these tubers are quartered, as dropped, into four as nearly equal parts as possible. This is done by splitting the bud-eye cluster in each direction from seed to stem end of the tuber. The four pieces of each tuber are dropped consecutively in the row, at a distance of from 10 to 12 inches apart in the furrow. All tubers showing discoloration of the flesh or other evidence of disease should be rejected.

By allowing an additional space between each set of fours, the four plants from each tuber are definitely isolated from adjoining ones, and the grower can readily observe any variation in vigor and uniformity between the units planted. This method also enables him to detect any mixtures that may occur in the variety.

At digging time the product of each unit is separately harvested and a further selection made from the marked units of all those which most nearly approach the size, shape, and smoothness desired. The selected tubers should be numbered with both field and unit numbers and separately placed in small sacks. From each of the units retained 10 of the best tubers should be selected for the next season's planting. It is desirable to maintain the study of each selection on the tuber-unit basis the following season, because it permits a more accurate comparison of the behavior of each.

The hill-selection method consists in marking the most promising plants during the growing season. At harvesting time save only those which give greatest promise. Keep the progeny of each hill separate, and take the same data as outlined for the tuber unit. Plant on the tuber-unit basis the following season. For sake of uniformity a definite number of tubers—five or more—should be planted from each hill selection. From this point on the methods given in the tuber-unit work should be followed.

The only requirements for the successful practice of the two methods of seed selections are a reasonable degree of painstaking effort on the part of the grower, some 12-inch garden labels, a small pair of

balances, a sufficient number of suitable small sacks, and a safe place in which to store the selected tubers until required by the next season's planting. In addition to this the grower should have a breeding plat in which each season's selections can be developed up to the point of field-planting stock.

The selection of the breeding plat need not necessarily be divorced from the general field plat. In most cases it can be more conveniently handled if it is a part of the regular field. All that is required is to set aside as many rows as may be required to plant the selected tubers. These should be preferably on one side of the field, so that they can be more readily observed. The planting furrows may be open and a fertilizer distributed with the potato planter by removing the disks, and setting the plow a trifle deeper. If a plow is used in covering, care should be exercised to avoid displacing the seed pieces.

BUY MAINE SEED POTATOES IN CERTIFIED BAGS ONLY.

Potato growers who purchase seed potatoes from Aroostook County, Me, are warned to accept only stock delivered in the original bags bearing the certificate of the Maine State Department of Agriculture to the effect that the potatoes are free from powdery scab.

This disease, against which the quarantine was laid last December on account of its prevalence in Europe and in portions of Canada, has recently been found in a few places in northern Maine. The State of Maine has organized an effective inspection service to exterminate the disease and prevent its spread to other States, and Maine potatoes are now being inspected and sorted more carefully than ever before. No scabby potatoes are allowed to be shipped for any purpose, and no potatoes intended for seed stock can receive a certificate unless they are free from all suspicion of having been grown on the same farm or having been stored in the same warehouse with scabby potatoes. The special certificate of the Maine authorities is, therefore, considered to be an adequate assurance that the stock is safe, but potatoes which do not have this certificate are open to the suspicion that they may be repacked table stock.

UNINTENTIONAL SKIMMING OF MILK CAUSES TROUBLE FOR MILK DEALERS.

Dairymen, grocers, and restaurant keepers who sell milk at retail often violate the laws regulating the sale of milk by unintentionally selling skimmed milk.

If the milk is not thoroughly mixed before pouring from a large container into a small can, pitcher, or other receptacle, most of the cream, which naturally rises to the top, will be poured into the first receptacles which are filled. The last milk poured out is actually skimmed milk, for it contains little or no cream. The same trouble occurs when milk is drawn from a faucet, except that in this case the process is reversed; as the skimmed milk is drawn from the bottom of the can first and the cream layer remains until the last.

This practice of not mixing the milk has caused milk vendors to be brought into court, although the violation of the law may have been unintentional in many cases.

The department recommends that milk be retailed in bottles. Whenever it is necessary to sell bulk milk, vendors are advised to mix their milk thoroughly each time before pouring from a large container into a small one if they wish to avoid unintentional skimming. This can best be done by stirring the milk with a long-handled dipper. Shaking the can is not sufficient.

COUNTY AGENTS NOT CHIEFLY ADVISERS.

County agricultural agents are sometimes referred to as "county advisers." This implies a misunderstanding of the real work of the agent. Advisory work is a part of the agent's duties, but is a minor part. The county agricultural agent has about half a dozen principal functions:

(1) He studies the agriculture of the county to learn what is being done and what is worth while agriculturally in each part of it. This study includes farm financial and organization surveys.

(2) He gives the results of his studies to farmers, not in the way of advice, but as facts observed and conclusions drawn. This is done through the local press, lectures, institutes, circulars, short courses, and personal interviews.

(3) Based on these local studies and the ascertained needs of the county, clubs, associations, and the like are organized and the individuals solicited to undertake definite lines of agricultural improvement on their own farms. Organizations are also formed for cooperative buying and marketing and the standardization of farm products.

(4) He endeavors to coordinate all existing agricultural agencies within the county, so that all may work unitedly and efficiently.

(5) He develops local leadership. The task of improving the agriculture of an entire county is so stupendous that the agent must be primarily an administrator. He must inspire and accept the help of voluntary assistants in work.

(6) He acts as the connecting link between the scientists of the research institutions of the State and Nation and the farmer, presenting the results of investigations in such a way that the farmer can use them, and calling attention of scientists to the local agricultural problems of the county and soliciting their assistance.

(7) He gives advice. This may relate to spraying, seed treatment, mixing fertilizers, combating insect pests, cultural practices, or other miscellaneous mat-

ters which are the stock in trade of every well-informed agent. The giving of advice is seventh on the list, because in actually improving the agriculture of the county it is probably of least importance, though in point of time it may be the first work undertaken.

MEAT CONSUMPTION PER CAPITA LESS IN AMERICA THAN IN AUSTRALIA AND ARGENTINA.

The only countries reported as having a greater per capita consumption of dressed meat than the United States are the Australian Commonwealth and Argentina. These, it is well known, are countries of sparse population and vast herds and flocks; hence meat is exceedingly cheap and the native consumption large and probably wasteful.

The per capita consumption of meat for Australia and Argentina is estimated to be in the neighborhood of 250 pounds per annum; it may possibly be even greater. The corresponding consumption for the United States was computed by the United States Bureau of Animal Industry to be 172 pounds in 1909, and it is estimated to be about 10 pounds less at the present time. This is much greater than the British consumption, the largest in Europe, which is slightly under 120 pounds per inhabitant per annum.

SEWAGE IRRIGATION IN NEW JERSEY.

A profitable means of disposing of sewage from institutions and small communities in districts where no general system of sewage disposal is available is disclosed by a report of experiments carried on by the Department of Agriculture at the New Jersey Training School located at Vineland.

In the past the sewage from this institution, which has a summer population of about 600 individuals, has been a nuisance, ruining considerable land and creating a breeding place for mosquitoes unless kept well covered with oil. In 1913 this sewage was spread over about twice as much ground as formerly, and this land, instead of being injured, was made to produce heavy crops of alfalfa and silage corn, thus doing away with the nuisance and securing a valuable crop at the same time.

It was possible to run this sewage over a part of an alfalfa field planted previously and compare the yields from the irrigated and unirrigated tracts. The part of the field on which the sewage was run yielded at the rate of 5 tons per acre for the season, while the part of the field receiving no sewage yielded at the rate of but 3 tons per acre.

The yields of corn were not determined, but the yield on the land on which the sewage water was run was so much larger than that on the land not watered that the directors of the school are putting in the equipment necessary to spread the sewage over still larger areas in 1914.

RESULTS OF DISTRIBUTION OF DROUGHT-RESISTANT FIELD SEEDS.

The Department of Agriculture during 1913, under an appropriation of Congress, distributed approximately 27,000 packages of drought-resistant field seeds. Each of these packages contained a sufficient quantity of seed to plant 1 acre, and this when successful supplied the grower with seed for a much larger area the following year. The crops included in this distribution were improved hardy and drought-resistant alfalfas, new varieties of field peas, improved strains of millets, Feterita, and Sudan grass. Those in charge of this distribution have rendered the following report as to the results obtained from the planting of these seeds:

Feterita, a grain and forage sorghum similar to kafir and milo, and Sudan grass, a wild form of sorghum somewhat coarser than millet, demonstrated beyond a doubt their immense value to the country. Notwithstanding the extreme drought which occurred throughout almost the entire growing season, these crops came to maturity and furnished forage where practically all other crops failed. Seeds of these varieties are at the present time greatly in demand and command a price far in excess of the ordinary sorghums or millets. The Amraoti and Bangalia varieties of field peas demonstrated their superiority over the common strains for dry-land farming and have created for themselves a strong demand in sections where they were tested. New millets also proved very promising, and, so far as can be determined from one year's results, this improved alfalfa will go far toward establishing this crop in sections too dry or too cold for the common strains.

In addition to alfalfa, Feterita, and Sudan grass, the distribution this year will include field peas, millets, improved strains of sorghums, wheat, and Tepary beans. The last-named crop is especially drought resistant, and is very promising in the southwestern portion of the Great Plains region as an article for human food.

The most promising and immediate results that are expected from the distribution of seed of dry-land field crops are the establishment in general use of two valuable crops—Feterita and Sudan grass; the making available of hardy and drought-resistant strains of alfalfa which virtually will make this crop a success over large areas where it can not now be grown successfully; and the introduction of new and highly promising crops, among which may be mentioned a new sorghum, the Freed variety, a semisweet sorghum which is highly drought resistant and valuable both for grain and forage, and the Tepary bean for human food.

Seeds of these new crops are not as yet staple commodities on the market, and a distribution such as has been conducted will go far toward making them generally available to farmers in the dry-land sections.

As for the broader aspects of the project, it is largely to the crops just indicated that the farmer must look for success in dry-land farming.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., APRIL 15, 1914. No. 36

POWDERY SCAB—A NEW AND DANGEROUS POTATO DISEASE.

Powdery scab of the potato is a European disease which doubtless followed imported potatoes before the quarantine law went into effect. Every possible effort is being made to prevent this disease making inroads on our potato industry, and the cooperation of all interested in this crop is much needed in dealing with this new potato malady. The department is issuing a bulletin (No. 82) entitled "Powdery Scab of Potatoes," which thoroughly explains the disease and gives all the practical advice available at the present regarding its control.

Powdery scab does not attack the portion of the potato vines above the ground. It is primarily a disease of the young tubers, which develops as they mature in the ground. The disease is made apparent by small, slightly raised pimples and a slight discoloration of the surface. When cut open, the infected areas appear faintly purplish and extend from approximately the outermost cells of the tuber toward the deeper layers.

The "powdery-scab" fungus, if conditions are favorable, may eat large cavities into the immature potatoes. Besides consuming parts of the tubers, it stunts their further growth and causes them to be deformed.

Last spring the department imported 18 varieties of potatoes from Scotland for seed purposes. All were found to be infected with powdery scab and had to be condemned. Nine varieties were imported from England for similar purposes and were all infected in the same manner. The disease has been found on potatoes from Belgium, Norway, and Sweden. On the potato's native heath—South America—the disease has been found. It was reported in several Provinces of Canada in 1913.

From Canada the disease has made some headway across the border into northern Maine. This is the one place where there is real danger at present from the infection, but active measures are being taken to drive out the disease and to prevent the shipment of diseased potatoes to other sections.

The seriousness of powdery scab may be realized from the following statement by a conservative Canadian scientist:

> The disease should by no means be regarded lightly. Severe attacks occur when potatoes are planted year after year on infected land. Where this is practiced the result will be potatoes hardly superior in quality to those badly affected with the canker. This fact is worthy of notice, especially since, as in the case of canker, no preventive measures have proved of much value.

AMERICAN CONSUMERS OBJECT TO "SCABBY" POTATOES.

Any kind of scab or other injury that mars or defaces the potato tuber is a more serious handicap in the American markets than in those of some European countries, due to the fact that consumers abroad offer fewer objections to scabby potatoes than consumers in the United States. There is even a belief prevalent abroad that scabbiness is an indication of superior quality. In the United States, when potatoes are put on the market, scabby potatoes must be sorted out, and therefore are of no use except for stock feed or the manufacture of starch. In Maine the price of scabby potatoes in the autumn of 1913 was 50 cents per barrel, while clean stock brought $1.50 per barrel.

In the country as a whole hundreds of thousands of bushels of potatoes are left in the fields because they are too scabby to market. There are frequent instances in the New York markets, according to potato dealers, where carload consignments are rejected because of the presence of numerous scabby potatoes. When the soil becomes infested with scab its value as potato land materially depreciates. This is especially true in sections where potatoes constitute the chief crop.

In addition to the fact that potatoes affected with powdery scab are less acceptable to the American than to the European consumer, there is also the probability that American varieties of potatoes may prove more susceptible than the European. Introduced parasites are often more destructive in a new environment than in an old one. The varied climatic and soil conditions of several of our States offer a wider range for the new potato malady. The brief experience with this disease in eastern Canada gives no hint of what its behavior might be in the southern trucking districts, the Central West, or the irrigated sections of the United States. Related potato diseases have proven more destructive in the western than in eastern potato territory.

Particular importance also attaches to the fact that Maine is the one State now seriously menaced. Maine is the chief source of seed potatoes for the Central Atlantic and Southern States, and adjoins that portion of Canada where the powdery scab is now most serious. If Maine potatoes should become generally affected,

only the most extraordinary efforts can check the spread of powdery scab to nearly every other State.

As yet no method of controlling this disease, when it once gets in the soil, has been found. The new bulletin of the department relates the results of certain experiments which are interesting, but they are of such a preliminary nature that further study will be required before they can be recommended. The best advice that can be given a farmer whose fields have produced a crop infected with powdery scab is this: Don't grow potatoes for several years on a piece of land that has produced a crop infected with this disease.

It is not yet known how many years the fungus may live in the soil; but its nature suggests that it can probably live for several years.

SACKS AND BARRELS AS AGENTS IN SPREADING POWDERY SCAB.

It is well known that second-hand sacks, barrels, and boxes are often used in marketing potatoes.

Seed potatoes shipped from the Northern States, to be grown in the South, are put up either in sacks or barrels. European potatoes coming to this country are shipped in 168-pound gunny sacks. In some of the Western States similar sacks, but holding 120 to 150 pounds, are used. These sacks cost from 12 to 16 cents each, depending upon their quality and whether they are new or secondhand. Sacks of good quality can be used many times, and this has come to be common practice. In both New York and Boston there are firms that act as clearing houses for potato sacks, buying secondhand sacks from anyone who may wish to sell them and shipping them to potato dealers either north or south. It may happen, therefore, that sacks that have previously contained diseased tubers coming from Europe or elsewhere will be used for shipping select seed from the North to the South.

There is considerable chance of potato diseases being spread by means of old sacks. Secondhand barrels may also communicate these diseases. The question arises as to how this spread of disease can be prevented; and, of course, the solution is a simple one—by using only new sacks. But this would increase to some extent the cost of potatoes and bring about the accumulation of large quantities of old sacks. It seems very likely that some means of sterilizing old sacks could be put into practice which would make them fully as harmless as agents in disseminating diseases as new sacks. This could probably best be carried out by firms dealing in sacks. It seems probable that subjecting the sacks to steam sterilization for several hours at a pressure of 15 to 20 pounds would render them free from noxious diseases without increasing their cost to any appreciable extent.

FARMERS ADVISED NOT TO SELL EGGS FROM INCUBATORS.

A number of poultry raisers, it seems, are putting on the market infertile eggs that have been tested in incubators from three days to a week. As soon as the breeder finds that the eggs will not hatch he takes them out and sends them to market along with his fresh spring eggs. After the eggs have been in the incubator for this period they are distinctly stale and rot very quickly if kept any length of time. Even when just taken from the incubator these infertile eggs are not fit for boiling or poaching, although they may be used for frying, and are good for cake or certain other baked foods. These eggs when they reach the market, however, are classified as low grade, No. 2.

The mixing of incubator eggs with the fresh spring eggs leads the egg packers, who get their principal cold-storage supply in the spring, to cut the price they pay the farmer, department investigators find. The spring eggs designed for keeping for winter consumption must be absolutely good. Moreover, the egg packers in the spring do not candle eggs, but hold them three at a time in the hand and clink them to discover any crack, and then judge their freshness by their fresh, powdery look on the shell. The mixture of infertile incubator eggs with fresh eggs interferes seriously with this clinking and forces the packer to candle the eggs. He then deducts this added expense from the price he offers to the producer. Eggs which have once been subjected to the heat of the incubator can not be stored, even though frozen.

The farmer who sells incubator eggs to the dealer, therefore, is very liable to injure his own market for fresh eggs. When dealers find a percentage of low-grade incubator or other eggs in their fresh spring egg supply, they lower the price for all eggs, so that they will be certain that they have covered themselves against losses from this cause. The department's specialists advise farmers to use any infertile eggs they may take from their incubators for home consumption and to send only fresh eggs to market.

THE COST OF RAISING A DAIRY COW.

According to investigators in the department, the average net cost of raising a dairy heifer 1 year old on a Wisconsin farm is $39.52 and of a 2-year heifer $61.41. These figures are applicable to other dairy districts in the North and East where land and feed values are similar to those in Wisconsin. They are based on data obtained from raising 117 calves from birth to the time they enter the dairy herd.

There are in the United States over 21,000,000 dairy cows. These figures give some idea of the importance of this economic problem to the country as a whole, for these cows must be replaced every few years. The

cost of the production of these heifers is a large item in keeping down the profits of the dairymen.

Bulletin No. 49, "The Cost of Raising a Dairy Cow," contains numerous tables and several illustrations of the Jersey calves from which the items of cost were obtained.

The most important item was the cost of the food, which was estimated at market value and amounted to nearly two-thirds of the total net cost of the heifer, while labor formed 12½ per cent of the cost.

Figures for the average net cost of the 1-year-old heifer are as follows:

Feed	$24.67
Labor	4.45
Other costs	6.36
Total	35.48

To this should be added the initial value of the calf, which was estimated to be $7.04, making a total cost at the end of one year of $42.52. This charge is justified in view of the fact that dairy cows are credited with this item in determining the cost of milk production. By allowing $3 credit for manure, it leaves a net cost of $39.52 at the end of the first year.

Figures for the average net cost of the 2-year-old heifer are as follows:

Initial value	$7.04
Feed	40.83
Labor	7.81
Other costs	13.73
	69.41
Credit for manure	8.00
	61.41

One-half of the feed cost the first year and one-third for the full two years is for whole and skim milk.

By far the most expensive period in the life of the calf is the first four weeks, the cost being nearly double that for any other four-week period. This high cost is occasioned by its being dependent almost entirely upon whole milk.

The man labor required in raising a heifer is about 40 hours during the first year and 23 hours the second year. The total cost of man and horse labor for the two years is close to $8. The manure produced during the two years has been valued at $8; consequently the cost of labor is practically offset by the value of the manure.

The item "Other costs" consists of expenses usually overlooked in estimating costs. These are interest, charge for the use of buildings and equipment, expense for bedding, miscellaneous expenses, a share of the general expenses for the entire farm business, and a charge to cover losses by death and discarding. The total for these forms nearly one-fifth of the total cost of the 2-year-old heifer.

The foregoing figures show that it costs more to raise calves to maturity than is commonly supposed, and they support the advice which the department is continually trying to impress upon dairy farmers, that it does not pay to raise any but the best heifers. Raising scrub heifers and selling them at $25 to $40 apiece, as many do, is unprofitable except on cheap land or under other very favorable conditions. But it does pay to raise the best heifers, for in good dairy sections well-bred heifers are worth considerably more than $60 when 2 years of age. Furthermore, dairy farmers as a rule are obliged to raise their own stock, as it is difficult to buy productive cows at a reasonable price. In some sections of the West where alfalfa is worth only $4 or $5 a ton, or in the Southwest, where pastures furnish feed the greater part of the year, this cost may be greatly reduced. Even where it costs $60 to raise a heifer, two-thirds of this amount is charged for feeds at market prices, a large part of which can be grown on the farm at a profit. Thus by raising the heifers the dairy farmer finds a home market for feeds grown on the farm at remunerative prices, and at the same time aids in maintaining the fertility of the farm.

LOWER COUNTRY SCHOOL ATTENDANCE WHERE ROADS ARE BAD.

While it is true that various factors contribute to increase or decrease the attendance at schools in given sections of the country, it is worthy of comment that in the States having a high percentage of improved roads a much larger percentage of the students enrolled regularly attend the schools than in the States having a small percentage of improved roads. In five Eastern and Western States, which have a large mileage of improved roads, the average attendance of enrolled pupils in 1908–9 was 80 per cent, while in four Southern States and one Northwestern State, which are noted for bad roads, the average attendance for the same year was 64 per cent—80 per cent in the good roads States as against 64 per cent in the bad roads States. In the States first named 35 per cent of the roads have been improved, while in the latter group of States there are only 1½ per cent of the roads improved.

That improved roads would benefit our country school system there would seem to be no doubt. Improved roads make it possible to consolidate or centralize the schools and to establish graded schools in the rural districts. Such schools centrally located will accommodate all of the children within a radius of from 4 to 5 miles. In many communities having the advantage of improved roads commodious buildings have been provided, more competent teachers have been employed, and modern facilities for teach-

ing have been supplied at a minimum cost. For instance, since the improvement of the main highways in Durham County, N. C., the number of schoolhouses have been reduced from 65 to 42, of which 17 are graded and have two or more rooms and employ two or more teachers.

There are at the present time about 2,000 consolidated rural schools in the United States. It appears that Massachusetts, Ohio, and Indiana have made the greatest progress along these lines, and it is rather significant to note that in these States about one-third of the roads have been improved. According to statistics of the Agricultural Department there was expended in 1899, $22,116 in Massachusetts for the conveyance of pupils to consolidated schools, but in 1908 the expenditure for this purpose amounted to $292,213. In Indiana the expenditure for this purpose in 1904 amounted to $86,000, while in 1908, $290,000 was expended. This expenditure for transportation reflects, in a general way, the extent and progress of this new educational movement. It must not be understood that this is an additional burden, as the expenditure thus made is saved in other directions; that is, by the decrease in the number of schools and economy in their operation.

In Indiana, Massachusetts, Ohio, and other States the one-room, one-teacher schools are being replaced by central schoolhouses, with a half-dozen rooms and as many teachers. Wagons are sent out every day to gather up the children and to take them home again in the evening. All of the children within a radius of several miles are thus provided with the most modern school facilities. In some of these schools courses in manual training, agriculture, and home economics have been introduced, scientific apparatus utilized, and teachers having special qualifications and training employed.

RESULTS OF IMPROVED METHODS OF DAIRYING IN THE SOUTH.

The owners of a farm in Virginia which was managed in the old-fashioned way kept 16 cows and sold their butter in the local markets for 27 to 30 cents a pound. The herd consisted of ordinary cows of mixed breeding which were allowed to run most of the year, but were tied up in the "overshoot" at milking time. In 1911, becoming dissatisfied with results, the owners decided to ship cream to Washington, D. C. This was found to be more profitable, as they received 45 to 50 cents a pound for butterfat; but on the first visit of the district inspector the buildings were pronounced insanitary. The cellar of the dwelling house was used as a dairy house; the barn was an old-time general-purpose barn; there was no silo on the place. The water supply, which was pumped by a windmill from the neighboring creek, was considered unfit for washing dairy utensils.

The owner built a new barn, a dairy house, and a silo at a cost of $1,789, according to plans furnished by the department. The department furnishes such plans to persons contemplating the erection of a new dairy barn, milk house, or silo, or for the remodeling of an old building, if requests are accompanied by statements of character and size of building desired. The new barn is a one-story building large enough for 30 cows, but so constructed that the cows can be kept clean with the least amount of labor. The old barn was retained for storage purposes.

Record sheets and scales for weighing milk were obtained and daily weighings of milk were made. A representative from the department assisted in making tests of the milk with the Babcock tester, and gave advice about feeding and general management.

At the present time the herd has been increased to 30 head of as good cows of mixed breeds as could be purchased, but it is doubtful if they are as good as those in the original herd. A pure-bred Holstein bull has been placed at the head of the herd. Four pure-bred animals of the same breed have recently been added. Following the advice of the dairy expert, better methods of feeding increased the yield of milk. The herd records show that during the year ending September 30, 1913, the average yield of milk per cow was 502 pounds more than during the previous year. Because of the improved condition of the buildings a better price is received for the milk, so with the increased yield, combined with the higher value of the product, the average profit from each cow was increased to the extent of $24.79 per annum.

FINES FOR VIOLATION OF 28-HOUR AND QUARANTINE LAWS.

Three cases of the Department of Agriculture against the Chicago, Rock Island & Pacific Railway Co. for violation of the 28-hour law have recently been terminated in Kansas. The penalty in each case was $100 and costs, which were, respectively, $16.60, $16.50, and $15.25. The Union Pacific Railway Co. was fined $100 and costs of $53.31 for violating the same law. The law in question prohibits the confinement of live stock in cars for more than 28 hours without unloading for feed, water, and rest. When a special request is signed by the shipper the time may be extended to 36 hours.

A case against Henry E. Brown for violation of the live-stock quarantine law was terminated on March 23 in the eastern district of Pennsylvania. The defendant was fined $100.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., APRIL 22, 1914. No. 37

PRACTICAL FARMERS THE PIONEERS IN ESTABLISHING THE AGRICULTURAL COLLEGES.

There had been much agitation for agricultural colleges prior to 1858, especially in New York, Massachusetts, and Connecticut, and the constitution of the State of Michigan, adopted in 1850, made provision for an agricultural school or college, which opened in 1857. The Farmers' High School of Pennsylvania (now Pennsylvania State College) was incorporated in 1854 and opened for students in 1859. In 1856 the legislature of Maryland incorporated the Maryland Agricultural College, and in that year Mr. Marshall P. Wilder, of Massachusetts, obtained from the legislature of his State a charter of "the trustees of the Massachusetts School of Agriculture."

THE MORRILL BILL—1858.

It has not been possible, however, to determine just what particular influence was most operative in inducing Senator Morrill, then a member of the House of Representatives, in 1858 to introduce and press his measure for education in agriculture and the mechanic arts, but he was guided and supported in this by a considerable number of practical men who were actively identified with agriculture.

In a historical address on the Influence of the Morrill Act Upon American Higher Education (delivered at the semicentennial exercises in 1912), President W. O. Thompson, of Ohio, developed the fact, as a result of his historical studies, that "in the great agricultural States this movement was born and cherished among the progressive and prosperous farmers in the several communities." He showed this by numerous references to the reports of agricultural societies and meetings the country over. There was a widespread movement for a practical type of education which should relate more directly to the everyday life of the common people. As Dr. Thompson said: "This new educational reform sprang, not from the educational philosophers or the professional teachers, but from the rank and file of the people themselves."

Mr. Morrill's bill was first passed in the House of Representatives by a vote of 105 to 100 on April 22, 1858, the first session of the Thirty-fifth Congress. During the second session of this Congress, on February 7, 1859, the bill passed in the Senate by a vote of 25 to 22. Nine days later the House agreed to the Senate amendments to the bill. On February 24, 1859, President Buchanan sent his veto to the House of Representatives. This veto was based on his belief that the time was inopportune, the possible effect on the relations between the Federal and State Governments, the effect on existing institutions, doubt as to whether it would actually promote the advancement of agriculture, and the contention that Congress could not appropriate money for education in the States, and hence its aid by means of land grant was of doubtful constitutionality.

THE MORRILL ACT OF 1862.

In December, 1861, Mr. Morrill introduced in the House of Representatives his amended bill which granted 30,000 acres of land for each Member of Congress for the establishment of colleges in each of the States, and May 2, 1862, Senator Benjamin Wade, of Ohio, introduced a similar bill in the Senate. Mr. Morrill's bill was reported adversely in the House by the Committee on Public Lands, but was passed by the Senate June 10, and nine days later by the House. President Lincoln made the bill a law by affixing his signature July 2, 1862. The Morrill Act granted no moneys, but lands from the Federal domain, as mentioned above, the amount being apportioned in accordance with the representation.

Second Morrill Act.—As the organization of the land-grant colleges proceeded and the system of technical education in agriculture and other industries was elaborated, it became evident to Mr. Morrill and other friends of industrial education that the income derived from the land-grant funds, even when supplemented by liberal contributions from the States and other sources, was inadequate to the demands for modern collegiate instruction in such lines. The need of supplemental appropriation by the Federal Government was strongly presented by the agricultural colleges, and especially by their representatives in the Association of American Agricultural Colleges and Experiment Stations.

Mr. Morrill (then Senator) accordingly introduced a bill appropriating to each State and Territory (out of funds arising from the sale of public lands) for the more complete endowment and maintenance of colleges for the benefit of agriculture and the mechanic arts, established under the act of 1862, the sum of $15,000 for the year ending June 30, 1890, and an annual increase of the amount of such appropriation for 10 years thereafter by an additional sum of $1,000 over the preceding year, the appropriation at the end of the 10 years to continue at $25,000 annually.

This bill was passed and received the approval of President Harrison August 30, 1890. Under this act the Secretary of the Interior is charged with the administration of the law.

NELSON AMENDMENT FOR 1908.

Under the impetus of the second Morrill Act agricultural education in the colleges developed rapidly and with it came demands for institutions of school grade. The demands on the agricultural colleges for leadership in a variety of lines of work, and especially in matters relating to the development of all forms of agricultural teaching, emphasized the need of further appropriation, attention to which was called by the presidents and administrative officers of the agricultural colleges, special emphasis being laid on the necessity for preparation of teachers in agriculture.

Accordingly, Senator Knute Nelson introduced an amendment to the agricultural appropriation bill of the Department of Agriculture for the fiscal year ending June 30, 1908, providing an additional appropriation out of any money in the Treasury not otherwise appropriated of $5,000 for the fiscal year 1908, and an annual increase of the amount by $5,000 over the preceding year for four years the amount thereafter to be $25,000 in addition to that carried by the second Morrill Act. The amendment contained the provision "that said colleges may use a portion of this money for providing courses for the special preparation of instructors for teaching the elements of agriculture and the mechanic arts."

HATCH ACT OF 1887.

The work of the agricultural colleges early developed the need for agricultural experimentation and investigation, to furnish the basis for the teaching of agriculture in science and practice. The experience of Europe in establishing experiment stations for that purpose was eagerly followed and the investigations of individuals like Liebig in Germany and Boussingault in France and Lawes and Gilbert at Rothamsted, England, were widely quoted in the classroom, at agricultural meetings, and in the public press. Experimental work was inaugurated at several of the agricultural colleges and an experiment station was provided in Connecticut in 1875, with an annual State appropriation. Other States followed, the rapid introduction of commercial fertilizers and the need for inspection lending impetus for the movement. It soon became evident, however, that the results of experiment station work were not restricted to State boundaries but that many of them were of nationwide application, and that agricultural investigation needed fostering to an extent which could not be provided for by State funds.

A convention of delegates from the agricultural colleges met at Washington in 1883 and discussed and indorsed the project for the establishment of experiment stations in connection with the colleges, in accordance with the terms of a bill already introduced in the House of Representatives by Hon. C. C. Carpenter of Iowa. The measure, however, failed of sufficient support and it was not put upon its passage. In 1885 a convention of agricultural colleges and experiment stations met at Washington, urged the necessity for national aid for investigation and experimentation, and indorsed the Cullen bill introduced in the previous Congress providing funds for that purpose. The Cullen bill was similar in its general provisions to the bill afterwards passed by Congress, now popularly known as the Hatch Act.

At the next session of Congress Hon. William H. Hatch, of Missouri, introduced a bill for providing an annual appropriation of $15,000 to each State and Territory out of funds proceeding from the sale of public lands for the establishment and maintenance of an agricultural experiment station, as a department of the land-grant colleges established under the act of 1862. The Committee on Agriculture made a favorable report on this bill in March, 1886, and nearly a year later it was passed by Congress and was approved by President Cleveland March 2, 1887.

ADAMS ACT OF 1906.

Once the confidence of the agricultural people in the ability of the experiment station to aid them was secured, the demands upon the stations became enormous. Information of immediate practical application was particularly desired, with the result that the funds and the time of the station employees became quite largely absorbed in studying somewhat local questions and working out by the simpler forms of experiments questions relating to the culture and fertilizing of crops, the comparative value of feeds for live stock, the control of injurious insects and plant diseases, etc. The inadequacy of the appropriation under the Hatch Act, although quite liberally supported by State appropriations, became widely apparent. The necessity of more thoroughgoing investigations which should reveal the principles underlying agriculture and solve in a more definite and final way the many problems growing out of it was emphasized by experiment-station men generally and by the Association of American Agricultural Colleges and Experiment Stations.

Hon. Henry Cullen Adams, of Wisconsin, who had followed closely the work of the experiment stations, notably that of the station in his own State, became so much impressed with this need that he introduced a bill to provide an increased annual appropriation of $15,000 a year, beginning with $5,000 in the fiscal year 1906 and increasing by $2,000 annually until the amount reached $15,000, the amount thereafter to be paid under the Hatch Act and the Adams Act to be $30,000 annually to each State and Territory.

This bill limited the expenditures to the necessary expenses of conducting original researches or experiments, and placed the administration under the Secretary of Agriculture. This bill passed Congress and was approved March 16, 1906.

PREVENTING ONION-FLAVORED MILK.

It is a well-known fact that feeds with a strong odor if given to cows just before milking will produce unpleasant odors and flavors in the milk. This can be avoided, however, if such feeds are given after rather than before milking. The time of feeding can be easily controlled when cows are kept in a stable, but when they feed in a pasture containing plants which produce unpleasant flavors in milk it is not so easy to provide a remedy.

In the Middle Atlantic States, and in some others adjoining, many pastures are so badly infested with wild onion or garlic that the milk is tainted if the cows are allowed to remain in the pastures until milking time. The dairyman should endeavor to eradicate the pest, if possible, but in the meantime some measures should be adopted to prevent losses from tainted milk.

The Dairy Division has recently conducted some experiments at the Beltsville farm in order to determine the length of time that must elapse between the feeding of wild onion and milking time. In some of the feeding tests one-half pound, in others 1 pound, of wild onion tops were fed at different lengths of time before milking. It was found that increasing the length of time between feeding and milking decreased the unpleasant odor and flavor. There was only a

faint onion flavor in the milk drawn from cows four hours after feeding, and even this almost disappeared when the milk had stood for four hours. In all cases the cream was more noticeably affected than the skim milk; in some cases there was no taint whatever in the latter.

The results of these feeding trials show that the dairyman should keep his cows from pastures badly infested with wild onion for at least four hours before milking in order to avoid onion-flavored milk. This may not be a safe guide if any of the cows should eat more than a pound of the onion tops. The department suggests that every farmer with onion-infested pastures should test the question for himself and determine how long it is safe to allow them in the pasture before milking.

KILLING WILD ONION OR GARLIC.

The wild onion, which when taken by cows gives an unpleasant odor and flavor to milk, matures in midsummer. Each plant at that time has at its base a large, soft-shelled bulb and several smaller, hard-shelled bulbs. The soft-shelled bulb germinates shortly after that time, and by the following spring the new plant has begun to form new bulbs. The hard-shelled bulbs, however, do not germinate at once, most of them remaining dormant until the following spring. There is, therefore, an overlapping of generations which accounts for the remarkable persistence of the wild onion.

WILD ONION IN CULTIVATED LAND.

To eradicate this weed from a piece of land it is necessary to take advantage of the knowledge stated above. The land should be plowed late in the fall as deeply as possible in order to bury the plants that have come up from the soft-shelled bulbs before they start producing young bulbs. The next spring the land should be prepared as early as possible for a cultivated crop by harrowing, preferably with a disk, the land being gone over frequently enough to prevent any top growth of wild onion. After planting the crop, corn or cotton being the best crops for this purpose, the cultivations should be made with the purpose of keeping down top growth of the onion at all times. An implement of the sweep type, or an ordinary cultivator to which sweeps or weed knives are attached, is the best for this purpose, since it cuts the onion stems off below the surface. These sweeps vary in length from 6 to 18 inches, and may be fitted to any of the up-to-date cultivators in place of the shovels. They should be wide enough to overlap, so that none of the weed stems can slip through. If the work is well done the weed will be entirely killed by "laying-by time." If it shows up again in the fall, however, the process of late fall plowing, followed by a cultivated crop the next spring, should be repeated.

WILD ONION IN PASTURES.

This weed occurs commonly in pastures, and if a pasture is badly infected all that can be done to eradicate the pest is to plow up and follow the cultivation method as outlined above. If a pasture is not so full of it as to warrant such a radical course, each clump of the onion may be attacked. This may be done by going over the pasture several times during the fall, winter, and spring with a mattock or similar tool and cutting off the tops as deeply as can conveniently be done. The onion will disappear in a couple of years under this treatment.

WILD ONION IN WHEAT.

The bulblets produced on the top of the onion stems are about the same size and weight as the wheat grains, so that they are very difficult to separate from the latter. This fact results in serious loss to wheat growers, since the bulblets contaminate the flour and gum the mill rollers. Farmers must therefore suffer a loss of from 20 to 50 per cent when such wheat is offered for sale. Fields should be cleaned of the onion by the cultivation method before they are seeded to wheat. It is also necessary to use wheat for seed that is free of the wild onion bulblets.

Many millmen will be interested in knowing that this department has worked out a method of separating the onion bulblets from wheat on a commercial scale. This plan is discussed in Bureau of Plant Industry Bulletin 100.

WHITEWASH.

Whitewash is the cheapest of all paints, and for certain purposes it is the best, according to Farmers' Bulletin 474. Lime, which is the basis of whitewash, makes a very sanitary coating, and is probably to be preferred for cellars and the interior of stables and other outbuildings. [The following directions for making whitewash are taken from "White Paints and painting Materials," by W. G. Scott:]

Ordinary whitewash: This is made by slaking about 10 pounds of quicklime with 2 gallons of water.

The lime is placed in a pail and the water poured over it, after which the pail is covered with an old piece of carpet or cloth and allowed to stand for about an hour. With an insufficient amount of water, the lime is "scorched" and not all converted into hydrate; on the other hand, too much water retards the slaking by lowering the heat.

"Scorched" lime is generally lumpy and transparent, hence the use of the proper amount of water for slaking and an after addition of water to bring it to a brush consistency.

Factory whitewash. (*Interiors*): For walls, ceilings, posts, etc.

(1) Sixty-two pounds (1 bushel) quicklime, slake with 15 gallons water. Keep barrel covered until steam ceases to rise. Stir occasionally to prevent scorching.

(2) Two and one-half pounds rye flour, beat up in ½ gallon of cold water, then add 2 gallons of boiling water.

(3) Two and one-half pounds common rock salt, dissolve in 2½ gallons of hot water.

Mix (2) and (3), then pour into (1) and stir until all is well mixed.

This is the whitewash used in the large implement factories and recommended by the insurance companies. The above formula gives a product of perfect brush consistency.

Weatherproof whitewash. (*Exteriors*): For buildings, fences, etc.

(1) Sixty-two pounds (1 bushel) quicklime, slake with 12 gallons of hot water.

(2) Two pounds common table salt, 1 pound sulphate of zinc, dissolved in 2 gallons of boiling water.

(3) Two gallons skimmed milk.

Pour (2) into (1), then add the milk (3) and mix thoroughly.

Lighthouse whitewash: (1) Sixty-two pounds (1 bushel) quicklime, slake with 12 gallons of hot water.

(2) Twelve pounds rock salt, dissolve in 6 gallons of boiling water.

(3) Six pounds Portland cement.

Pour (2) into (1) and then add (3).

NOTE.—Alum added to a lime whitewash prevents it rubbing off. An ounce to the gallon is sufficient.

Flour paste answers the same purpose, but needs zinc sulphate as a preservative.

Molasses renders the lime more soluble and causes it to penetrate the wood or plaster surface; a pint of molasses to 5 gallons of whitewash is sufficient.

Silicate of soda Solution (about 35° Baumé) in the proportion of 1 to 10 of whitewash produces a fireproof cement.

A pound of cheap bar soap dissolved in a gallon of boiling water and added to about 5 gallons of thick whitewash will give it a gloss like oil paint.

An old receipt for whitewash, issued by the Lighthouse Board of the Treasury Department, said to be very good for outdor exposure, is as follows:

Slake half a bushel of unslaked lime with boiling water, keeping it covered during the process. Strain it and add a peck of salt, dissolved in warm water; three pounds of ground rice put in boiling water and boiled to a thin paste; half a pound of powdered Spanish whiting and a pound of clear glue, dissolved in warm water; mix these well together and let the mixture stand for several days. Keep the wash thus prepared in a kettle or portable furnace; and when used, put it on as hot as possible, with painters' or whitewash brushes.

The washes which contain milk, flour, or glue are not to be advised for use in damp, interior places, owing to danger of decomposition of the organic matter. For such locations it is better to use one of the formulæ containing none of these ingredients. Whitewash is applied with a broad whitewash brush and is spread lightly over the surface, no attempt being made to brush it in as is the case with an oil paint.

PUBLICATIONS ON AGRICULTURE FOR DISTRIBUTION.

No publications are sold by the Department of Agriculture, therefore do not send money to the department. Copies of publications listed here will be sent free upon application to the Editor and Chief, Division of Publications, Department of Agriculture, Washington, D. C., as long as the supply lasts. When this department's supply is exhausted publications can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., by purchase only, and at the prices noted here. Send all remittances to the Superintendent of Documents direct. *His office is not a part of the Department of Agriculture.*

Among the most recently issued publications are the following:

Raising and Fattening Beef Calves in Alabama. 11 pages, 1 illustration. (Department Bulletin 73.) Price, 5 cents. This publication is of interest to farmers in the Southern States.

The Potato Quarantine and the American Potato Industry. 20 pages, 1 illustration. (Department Bulletin 81.) Price, 5 cents. This bulletin tells of the necessity for establishing a quarantine against potatoes from certain countries, gives brief descriptions of the potato diseases that have been imported, indicates some of the agencies by which these diseases have been spread over this country, and gives information that potato growers should have in advance of the planting season. It is intended for general distribution.

A System of Farm Cost Accounting. 15 pages. (Farmers' Bulletin 572.) This bulletin is of interest to farmers in all parts of the country who desire to keep accounts and yet have not worked out a system for themselves. Others who are keeping farm accounts but who are not satisfied with the results will probably find suggestions of value herein. This system has been in use by Prof. Warren of the New York College of Agriculture on his own farm for the last seven years, and its principles are published in his book entitled "Farm Management." For three years the system has been given a fair trial by a number of farmers under immediate supervision of its author working jointly for the United States Department of Agriculture and the New York State College of Agriculture.

MAY 16 DESIGNATED AS ROOSTER DAY IN KENTUCKY AND TENNESSEE.

In the interest of the infertile egg the poultry specialists have started a campaign for the elimination of the rooster among poultry flocks during the seasons between May 1 and December 1. In this connection Saturday, May 16, has been set aside by the people of those States as rooster day in Kentucky and Tennessee, when every poultry dealer in these States has agreed to pay the same prices for roosters as they do for hens and pullets. There is an enormous loss in eggs as the result of the fertile egg, especially during the summer and fall months, and it is for this reason the department recommends that the rooster be kept away from the hens during these seasons.

Fertile eggs spoil very quickly when subjected to the ordinary methods of handling on the farm and when marketed during the hot summer months under adverse conditions. Infertile eggs will keep in good condition in temperatures which will cause fertile eggs to rot.

It is estimated that one-third of the tremendous annual loss of eggs is due to the fertile egg.

The department specialists advise that on the 1st of May all male birds be either killed, sold, or confined until the 1st of December, or as late as the 1st of January in some localities, inasmuch as it is not necessary to the laying qualities of a hen that a rooster be maintained in the flock. Moreover, his presence during those months means fertile eggs, which mean bad eggs and the consequent loss to the producer and the consumer.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., APRIL 29, 1914. No. 38

HOW THEY FORECAST THE WEATHER.

One of our correspondents writes:

Will you please tell me through the News Letter, in simple language, how the weather forecasts are made?

To this the shortest and simplest answer is: By telegraph. The weather forecaster does not look out of the window and guess. He is not weatherwise like the old salt who scents the approach of a storm without knowing how. To the signs by which the ordinary citizen decides whether to take his umbrella with him or leave it at home, he pays no attention. Give him his telegraph wires and he can make his predictions as accurately in a windowless cellar as on the top of New York's highest skyscraper.

The private individual sees the clouds settle on a near-by mountain or the rain sweep over a field a mile from his house and knows that the storm will be on him in a few minutes. With the aid of the telegraph the weather man sees the same storm when it is a thousand miles away, and not only this storm but every other one in the country. He knows in what direction and at what speed each is moving, and can thus calculate with reasonable accuracy the approximate time when it will reach any place in its route.

Twice a day, at 8 in the morning and 8 in the evening, reports are telegraphed to Washington from about 200 observers stationed in as many different localities in the United States and Canada. In these reports the observers do not volunteer their personal opinions about what is going to happen. They confine themselves to a plain statement of the actual conditions at that particular moment, the pressure, or weight, of the atmosphere, the temperature, the direction and velocity of the wind, the amount of rain since the last report, and so forth. From this information the Weather Map of the United States is made up, showing the conditions that prevail in every part of the country. Since there are two maps for each day it is obvious that by comparing them the forecaster can keep track of the course and progress of both storms and periods of clear weather. From that, the next step is to predict what sort of weather will prevail for a day or two in any given locality.

This map is the basis for all scientific weather forecasting. A glance at it will show that it is divided into "high pressure areas" and "low pressure areas." These are technical terms used to describe the regions in which the weight or pressure of the atmosphere is great (high) or small (low). At sea level the barometer, which is used to measure this weight, will register 30 inches under normal conditions of the atmosphere. When it registers more than this, say 30.5 or 31, the pressure is "high;" when 29.5 or less, "low." In this way the height of a column of mercury in a barometer indicates the weight of the air just as, in a thermometer, it indicates the temperature.

Low pressures usually mean strong winds, rain, and rising temperature; high pressures, cool, clear weather. For a reason to be explained later, these "highs" and "lows," as they are called, travel in a general direction from west to east. The forecaster notes their progress on the map, perceives their speed and their route, and then predicts the time of their arrival at any specified point. If they traveled, like a ship steered by compass, an exact course to the east, and if they moved invariably at the same speed, then weather forecasting would be a simple sum in arithmetic, like calculating the time when a railroad train running 50 miles an hour will arrive at a station 500 miles away. But storms are not railroad trains. They travel in an easterly direction, but they do not travel due east. Their speed is liable to change, and they are affected by the presence of other storms, by mountain ranges, large bodies of water, and many other things which make weather prophesying the complicated science that it is. The skeleton of the science, however, is the progress of those "highs" and "lows" eastward across the country.

This progress is caused by the shape of the earth and the well-known fact that hot air rises. The tropical sun in the regions along the Equator heats great masses of air, which rise and drift toward the North and South Poles. As the earth revolves from west to east these masses are carried along with it at the same speed. But, as is also well known, the Equator revolves much faster than the poles, which are practically stationary, in much the same way as the rim of a wheel revolves faster than the hub. Therefore these masses of air, revolving at the same rate as the Equator, begin, as they approach the poles, to move much faster than the earth beneath them. There is thus a constant movement of the atmosphere from west to east, a movement which becomes more marked the nearer one gets to the poles.

This, of course, does not mean that the wind always blows from the west. The great current flows in that direction, but surface conditions cause innumerable eddies which are the winds we feel. Into a low pressure area, for instance, the air rushes from every direc-

tion. Thus, if the center of the disturbance is to the west of us, we will have an easterly wind as the air rushes toward this center; when the storm has reached and passed us on its easterly way we will have westerly winds. For this reason it is common to say that west winds mean clear weather.

The air that flows into the low-pressure area obviously must go somewhere. Since it is coming in from every point of the compass, the only available place is up. As it rises it cools and contracts. In the process the moisture it contains is condensed and we have rain. That is, we are likely to. It can not be stated too emphatically that there are many things to be considered which may make exceptions to the most fundamental rules.

In regard to temperature, everyone has noticed that rain in winter means warm weather, in summer cool weather. This arises from the fact that heat travels more easily through clear skies than through clouds and moisture. In the daytime heat reaches the earth from the sun; at night it leaves the earth to be absorbed in the atmosphere. In summer, therefore, when the days are longer than the nights, the earth is being heated for a greater part of the 24 hours than it is being cooled. In consequence the clearer the weather and the easier it is for heat to travel, the hotter it grows. In winter the reverse is true. The cooling time is longer than the heating, and the clearer it is the colder it grows.

Thus the pressure of the atmosphere is the key to the weather, affecting the three vital questions of rain, temperature, and wind. Many things may create an area of low pressure and many things may influence its career when once it has been created. But there are certain general rules based on the principles already outlined. The weather maps tell the forecaster the conditions of the last few days, the telegraph tells him of the conditions at the moment, and with this information he is able to predict the conditions for the immediate future from a standpoint very different to that of the amateur observer, however experienced, who can form an opinion only from the signs visible to his unaided eye. It may, in fact, be said that no accurate forecasts for more than a few hours in advance are possible unless the prophet is able to study a series of observations covering a wide range of country a few hours after they have been taken. For its weekly forecasts, indeed, the United States Weather Bureau has reports not only from this country but from abroad and at sea as well.

WARNING TO HAVE MAINE SEED POTATOES RE-EXAMINED.

On account of the recent discovery of violations of the Maine quarantine regulations, all purchasers of Maine seed potatoes are warned to have their stock examined by the State expert, if possible, before planting. Unscrupulous shippers, it is learned, have been sending diseased potatoes to New York, Boston, and other points, where certificates of inspection have been fraudulently attached to the bags. While in general the Maine authorities have endeavored to see that none but sound potatoes left the State, certain inspectors have been negligent and have certified diseased stock. The Department has, therefore, advised buyers to disregard all certificates issued hitherto.

HOW TO CONSTRUCT A POULTRY HOUSE.

Poultry houses may be built more open and consequently less expensively in our Southern States than in the North, according to investigators of the department. However, a house which gives satisfaction in Maine will also give good results in Texas or California. The best site for a poultry house in any location is one where good water and air drainage are available. The floor and yards will then be dry. The house should not occupy a low hollow in which cold air settles. Wherever possible a southern or southeastern exposure should be selected, although this is not essential if there is any good reason for facing the house in a different direction.

"Poultry House Construction" is the title of the department's new Farmers' Bulletin (No. 574), in which are explained the main features that should be considered, and in which pictures and plans of satisfactory houses are shown. Every poultryman who contemplates erecting new poultry buildings should write to the department for this bulletin, which will be sent him free on application, as long as the department's supply lasts.

THE "INTENSIVE SYSTEM" AND THE "COLONY SYSTEM."

There are two popular ways in which to raise poultry, the "intensive system" and the "colony system." The first of these aims to save steps, and accomplishes this purpose. Long stationary houses are used. It is easier, however, to keep the birds healthy and to reproduce the stock under the second system.

Under the colony system the birds are allowed free range, the houses, which hold about 100 hens each, being placed from 200 to 250 feet apart, so that the stock will not kill the grass. This system may be adapted to severe winter conditions by drawing the colony houses together in a convenient place at the beginning of winter, thus reducing the labor during the cold months. The first system is more suited for hens used solely for the production of market eggs than for those used to breed stock.

AS FEW FENCES AS POSSIBLE.

Fences mean an outlay of money, and this outlay is more or less continuous, as they must be maintained after being installed. There should be as few fences as possible dividing the lots and the yards, as land can be kept "sweet" more easily if not fenced, and fresh, sweet land is a valuable asset in poultry raising.

On good soil, a greensward may be kept up by allowing 200 to 250 square feet of land per bird. This means 217 or 174 birds per acre. More space is necessary on poor or light land. A larger number of fowls are usually kept to the acre where double yards are used and the land is frequently cultivated. Plymouth rocks and the other heavy meat breeds in small yards require fences 5 to 6 feet high, while a fence 6 to 7 feet high is necessary for leghorns. The upper 2 feet of the fence for the latter may be inclined inward at an angle of 30°, or a strand of barbed wire may be used on top of the regular wire, to keep them confined. It is also sometimes necessary to clip the wing feathers of one wing of these birds that persist in getting out. A board or strip along the top of the fence is not advisable. Hens will often fly over such an arrangement.

Posts may be set or driven into the ground. They should be set 8 to 10 feet apart, with common poultry netting, or 16 to 20 feet, with woven wire. Corner posts should be about 8 inches in diameter and be set 4 feet in the ground, while intervening posts may be 4 or 5 inches in diameter and set 3 feet in the ground. That part of the post which is set in the ground may be charred or treated with some wood preservative to advantage, while corner posts should be firmly braced or set in cement.

PAINT ADDS BOTH TO APPEARANCE AND SERVICE.

All buildings and appliances on a poultry farm will be improved greatly, both in appearance and in serviceability by the addition of paint. One may buy ready-mixed paints, or may purchase paste pigments and oil and mix them. All surfaces should be clean and dry before they are painted. Use a priming coat made of equal parts of paint and linseed oil and cover with one or more coats of paint, which should be thoroughly rubbed into the surface.

Whitewash is the cheapest of all paints, and may be used either for exterior or interior surfaces. It can be made by slaking about 10 pounds of quicklime in a pail with 2 gallons of water, covering the pail with cloth or burlap and allowing it to slake for one hour. Water is then added to bring the whitewash to a consistency which may be applied readily.

A weatherproof whitewash for exterior surfaces may be made as follows: (1) Slake 1 bushel of quicklime in 12 gallons of hot water; (2) dissolve 2 pounds of common salt and 1 pound of sulphate of zinc in 2 gallons of boiling water; pour (2) into (1), then add 2 gallons of skim milk and mix thoroughly. Whitewash is spread lightly over the surface with a broad brush.

AMERICAN WOOL NEEDS BETTER HANDLING.

A preliminary report of the investigation into the methods of marketing American wool, now being conducted by the department, indicates that from 10 to 20 per cent of the value of the crop is lost annually through the neglect of a few simple measures. Under existing conditions, when American and Australian wools lie side by side in the warehouse, the poor handling of American wools is so noticeable that the price is inevitably affected. This handicap would be removed to a great extent if all growers would agree to do four things:

Sack ewe, lamb, and buck fleeces in separate sacks.

Shear black sheep separately and keep the fleeces separate.

Tie the fleeces with paper twine, which does not adhere to the wool.

Remove the tags or dung locks and put them in separate sacks marked to show their contents.

Figures prepared by the Bureau of Statistics (Agricultural Forecasts) and based on reports from 383 growers who sheared in 1913 a total of 2,269,005 sheep show that at the present time about one-half of the flock owners sack ewe, lamb, and buck wool separately, about 60 per cent separate the black fleeces and tie with paper twine, and less than one-half put tags in separate sacks. It is pointed out, however, that the correspondents who took the trouble to answer the inquiries of the investigators, and from whose replies these statistics are compiled, presumably represent the more progressive element in the industry, and that if it were possible to obtain the facts from every woolgrower in the country the percentage of those using the improved methods would be found to be much lower.

It is pointed out also that although, on the face of them, these returns do not seem so unsatisfactory, the value of wools produced in a given locality is set by the general reputation already established. Buyers will not alter their prices for small individual clips, though they may be better handled than the average, and in consequence those who do put up their wool properly are made to suffer for the sins of their neighbors.

Buying concerns can and may, however, allow their representatives more latitude in discriminating between individual clips. But even should they do so, prices could be altered only for clips of sufficient size to yield around 10,000 pounds of each grade contained.

Fifty-nine cases were reported in which dockage for tags was made upon the whole clip, although the tags had been separately sacked.

The remedy, the investigators declare, is to raise the reputation of a locality by an agreement among the growers not to permit any poorly handled wool to leave the community.

It can not be said that the growers who follow the practices advocated by the market at present receive

much, if any, compensation for so doing. As in other lines, it rests with such progressive individuals to bring their communities up to a common standard that will be of benefit to all.

In the opinion of the investigators the reforms already mentioned would be sufficient for the present to put American wool in a different light. Later it may be advisable to adopt the Australian methods of "skirting," or removing from the fleece the wool of the legs and belly, and grading before sacking, but this is not urged now.

CERTIFICATED BREEDING ANIMALS IMPORTED IN 1913.

The Bureau of Animal Industry has issued a list of animals imported for breeding purposes in 1913 for which certificates of pure breeding have been issued by the Federal department. This list includes the names of animals, their registration number, the name of the importer, and the department number for the various breeds.

The following table shows the number of certificated cattle imported for breeding purposes during 1913:

Breed.	Bulls.	Cows.	Total.
Aberdeen-Angus	4	.....	4
Alderney	2	98	100
Ayrshire	23	163	186
Galloway	11	2	13
Guernsey	40	738	778
Hereford	35	33	68
Holstein-Friesian	10	16	26
Jersey	35	608	643
Shorthorn	84	122	206
Total	244	1,780	2,024

This list can be obtained on application to the Bureau of Animal Industry.

CORN A GOOD GRAIN FEED FOR MULES.

EXPERIMENTS AT THE MISSOURI AND KENTUCKY EXPERIMENT STATIONS INDICATE THAT CORN IS CHEAPER AND JUST AS GOOD AS OATS FOR FEEDING MULES.

A recent bulletin of the Missouri Experiment Station says:

With the tendency toward increased prices on all classes of feeds and with the increased attention to the business side of farming, the economical maintenance of mature work mules has become an important problem on many farms in Missouri and other States where mules are used. It has been the custom to maintain mules on various rations, consisting of oats, corn, timothy hay, and perhaps some other common feed stuffs. These have been fed in varying quantities and combinations. Corn has been extensively used as a grain ration. Many students of animal nutrition have given the matter consideration and have recommended a less extensive use of corn and an addition of an increased portion of oats and other feed stuffs.

It has been a prevalent opinion that oats is a better feed than corn for horses and mules. Various arguments have been presented as proof of this statement, yet the fact remains that corn constitutes a great portion of the feed given to mature work animals. The protein content of oats and the mineral content together with the physical condition of the oats as a feed have all been cited as reasons for the efficiency of oats. It has been suggested that a mixture of oats and corn for mature work mules would be a more satisfactory ration than either oats or corn alone. It was the plan of this experiment, however, to feed two lots of mules, the grain ration received by one lot to be oats alone, while corn alone should be given to the other. The roughness consisted of mixed clover and timothy hay.

The experiments were made with four mules and extended over two years.

Although the number of animals used was not large, the lots were so reversed as to tend to eliminate individuality.

Mules receiving corn and hay maintained good health and appetites, as did the mules receiving oats and hay.

The mules which received corn and mixed hay maintained their weight slightly better than did the mules fed oats and mixed hay.

The mules receiving corn and hay endured hard work in hot weather as well as did those receiving oats and hay.

No difference in spirit could be detected in the different lots of mules.

Mature mules required 3 per cent more grain and 1.4 per cent more hay to maintain approximately live weight when fed oats and mixed hay than when fed corn and mixed hay.

The mules receiving corn and mixed hay did 6 per cent more work when the number of hours is used as a basis than did the mules which received oats and hay.

No abnormal effect could be noticed in any of the mules receiving either ration.

The mature mules in the two-year test were maintained 28 per cent more economically on a ration of corn and mixed timothy and clover hay than on one consisting of oats and mixed clover and timothy hay, when corn is valued at 50 cents per bushel, oats at 40 cents per bushel, and hay at $10 per ton.

In similar experiments at the Kentucky station, comparing ear corn with cracked corn, bran, and oil meal, it was observed that "the health and spirit of the mules fed the ear-corn ration were not noticeably different from those fed the grain mixture. Both rations served to maintain the weight of the mules. * * * The skin and hair of the mules fed on ear corn were not as soft and glossy as of those fed the mixed grain. This desirable gloss of the coat of hair was due probably to the oil meal. * * * Because of the high price of bran and oil meal, the ear-corn ration was the cheaper. The ear-corn ration cost 30.3 cents per day, the grain mixture ration 31.8 cents."

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., MAY 6, 1914. No. 39

HUMUS OR VEGETABLE MATTER AND SOIL FERTILITY.

In connection with a series of localized tillage surveys, the department has incidentally uncovered the following data on the relation of humus or vegetable matter in the soil to the crop-producing power of the soil:

Soil type.	Per cent of humus.	State.	Yield of corn (bushels per acre).
Cecil clay	1½	North Carolina	20
Hagerstown loam	2¼	Virginia	30
Miami clay	5	Ohio	45–50
Illinois prairie	5	Illinois	45–50
Houston clay	3¾	Texas	30–35
Marshal silt loam	3½	Nebraska	35
Carrington silt loam	3	Iowa	35–40

The striking correlation between the per cent of vegetable matter in the soil and the yield of corn in these areas investigated is another strong link in the chain of evidence that organic or vegetable matter in the soil is the most effective factor in soil fertility.

There are many well-known methods of supplying this vegetable matter to the soil. Crop residue is usually the basis of more humus. Grass or sod crops are the most valuable in this respect. On lands especially poor in humus, it is often advisable to grow summer legumes, such as cowpeas or soy beans, to be turned under in fall. Stable manure is of great value in increasing humus. Winter cover crops, such as annual clover, vetch, or rye, are now extensively grown, to be turned under in toto in the early spring. In the Southern States where winters are mild, winter cover crops not only produce an enormous amount of matter to turn under, but in producing this utilize the land at a season when otherwise idle and growing poorer by leaching.

PURPOSE OF FARM COST ACCOUNTING.

Discussion of the value and use of complete cost records on the farm is becoming quite frequent in the rural press, and rather divergent views on this subject are being expressed. The real purpose of keeping cost records is to determine the cost, income, and profit of each individual enterprise in which the farmer is engaged; to set forth the governing factors of these; to exhibit the efficiency in the management and use of man labor, horse labor, and farm machinery; to show what the cost of living amounts to; and to fit these and all other branches of the farm industry into a complete, comprehensive whole that shall show every detail of the farm organization and operation.

Cost-accounting methods that fulfill all requirements in commercial enterprises will not necessarily do for the farmer. While the farm is a business and factory combined, it has one element not found in any other line of business, for the farm is a home, and the home finances are so involved in those of the farm that it is necessary to use care and thought to avoid confusing the farmer's personal business as a man with the farmer's business as a farmer. A man may make a profit in his farming operations and still be falling backward steadily by reason of his high personal and living expenses; or he may not even be making 2 per cent on his investment and yet be getting ahead. He may do this by keeping down these personal expenses, or a small per cent net return on a large capital may more than cover his living expenses. By means of complete farm cost records these conditions can be shown in their true light and the farmer enabled to discover the weak spots in his business organization.

Keeping account with only one or two enterprises may not show true conditions. In such accounts all possible income items are usually remembered, but many items of expense which complete accounts show actually exist are rarely added to the costs. As Prof. Warren, of the New York State College of Agriculture, has said, "It is easy to figure a profit on anything except on the farm as a whole," and an attempt to bring the profit figured on a few separate special enterprise accounts into harmony with the year's gain or loss on the whole farm will usually fail for lack of complete data.

In all cases, actual farm values should consistently be used and the actual facts ascertained. If the values or quantities are made too high in the inventory in order to swell the year's "book" profits, the next year's "book" profits are affected inversely in like amounts. If the crop yields are overestimated or overvalued to make the crops show up well; if they are underestimated and undervalued when fed to live stock in order to show profits; if manure is credited to the live stock and never charged to the crops; or if any such juggling of accounts is indulged in by any man he is only fooling himself, and he gets distorted and misleading results. Showing every enterprise as it is, with conservatism in placing values, is the only safe road to true results.

Another pitfall in farm cost accounting is the tendency, almost universal, to single out one farm enterprise—as, for instance, beef cattle—as the sole productive account of the farm and to charge all produce to this account at cost. Accounting of this kind is

labor thrown away. The results will not give the farmer information that will enable him to improve his methods so as to increase his profits.

The keeping of farm cost accounts requires thought and painstaking attention in their recording, summarizing, and interpretation, but are well worth it to the farmer who wishes to know just what he is doing. What is the use of going to a lot of trouble to keep accounts that do not give any true insight into actual conditions? Beef is a finished product; so also are corn, oats, hay, and many other things produced on the farm. The production of each of these is a separate, distinct farm enterprise, and the farmer needs to know the relative profit or loss from each independent of the others. When honestly done, farm cost accounting furnishes a direct and safe basis on which to work out a more profitable business management for the farm.

SWEET CLOVER.

The Kansas Experiment Station in a recent publication makes it plain that sweet clover, a hitherto neglected plant, despised as a pernicious weed, has very considerable agricultural value. It is stated that "as a soil improver it is unexcelled; for pasturing purposes it has considerable value; and as a forage crop it can be utilized to good advantage where alfalfa or red clover can not be successfully grown."

Attention is called to the fact that "there are several varieties of sweet clover, of which the common white sweet clover and the large biennial yellow sweet clover are the most important. The white variety is generally to be preferred for farm purposes, although the biennial yellow is sometimes preferred where hay production is desired." Sweet clover is adapted to a wide range of soils, and while it does best on good soils, it will make a satisfactory growth on very poor soils.

Grown on good soil and properly handled it makes a fair quality of hay which may in many cases be substituted with advantage for the more valuable alfalfa and clover hays. In actual nutritive constituents it is practically equal to these. It makes an excellent pasture for cattle, sheep, horses, and hogs, and for this purpose may be profitably grown on very poor and rough land.

For quick results in improving the soil sweet clover is superior to most other crops. Its ability to thrive well on soils lacking in humus or otherwise badly run down makes it especially adapted for this purpose. Like alfalfa, cowpeas, and other legumes, it has the ability to obtain nitrogen from the air by means of the nitrogen-gathering bacteria which live in tubercles on the roots of the plants, thus adding much nitrogen to the soil in which it grows. When plowed under for green manure or allowed to remain on the land this crop is a very efficient one in building up the humus content of the soil. The large roots, which penetrate deeply, break up the lower layers of the soil and add much humus thereto when they decay, thus improving the physical condition of the soil to a considerable depth below the depth of plowing. Sandy as well as heavy clay and hardpan soils, which would not otherwise produce satisfactory crops, may be so improved in texture by growing sweet clover for a few years that they become quite productive.

A weed has been defined as a plant which has not yet found its proper use. In view of present knowledge of its possibilities sweet clover can no longer be regarded as a weed.

HIGHLY PROFITABLE FARMS.

Farm management surveys are now being conducted in a good many localities in this country. In nearly all of them it has been found that from 2 to 5 per cent of the farmers are making very handsome incomes. A study of these highly profitable farms with a view to finding wherein they differ from ordinary farms brings out some very interesting relations.

The farms may be divided into three classes. One class consists of highly specialized farms, where the farming is not only of the most intensive character but is of large magnitude. Highly successful farms of this class are found only in those localities that possess distinct advantages in the matter of markets for perishable farm products or very distinct advantages in the matter of soil and climate.

Another class consists of farms producing products of exceptional quality. They are mainly farms on which very high-priced live stock are produced. These farms are scattered more or less throughout the county and are not numerous anywhere. There is, in fact, not room for a large number of such farms in any section.

The third class consists of farms that are organized on the basis of standard field crops and the ordinary types of live-stock farming, but which are both very large and very well managed. It is this latter class of farms which appears most commonly in the Middle West, where there is not room for very many highly specialized farms. In New England fruit and truck farms, as well as farms devoted to the production of the highest class of breeding stock, stand out very prominently amongst the highly profitable farms.

While the highly specialized farm represents the possibility of great profit, it frequently also represents the possibility of heavy losses on account of the tremendous fluctuation in production, and consequently in prices, of the products of intensive farming. In the greater portion of the country the great mass of farmers must gain their livelihood from the ordinary field crops and the common types of live stock. The surveys clearly demonstrate the fact that in general farming the size of the farm is a very important factor. The

farm should be large enough to give the working force available to the farmer a maximum of productive labor throughout the year.

FIRST FARMERS' COOPERATIVE LAUNDRY.

The first farmers' cooperative laundry in the United States is now in successful operation at Chatfield, Minn., where it is doing much to eliminate for the overworked farm woman the terrors of "blue Monday." Chatfield is only a small village and the laundry's patrons are almost entirely obtained from the open country around. Coarse clothing of all sorts, overalls, rugs, bed clothing, and fine fabrics as well are handled at a uniform price of 5 cents a pound for washing and ironing. An extra charge is made for such articles as need to be ironed by hand. The laundry is managed in connection with a cooperative creamery, paying to the creamery a reasonable rental for the use of a part of its building. Modern machinery was installed at the beginning and an experienced laundryman engaged as superintendent. For the first year of operation, which has just closed, the receipts were $5,403, 70 per cent of which was paid out for wages. Patrons received a dividend of 10 per cent and stockholders 6 per cent additional. The success of the innovation will, it is said, prove most encouraging to rural workers everywhere.

SPRING PREPARATION FOR CREAMERIES.

As soon as the ground is free from frost, the yards, the lawns, and other parts adjacent to the creamery should be cleared of all rubbish and thoroughly cleaned. If the drive is in poor condition, repairs should be made without delay. Ornamental trees and shrubbery, which add so much to the attractiveness of the creamery, should be set out at this time and the flower beds put in order. The machinery should be subjected to a thorough overhauling, and if new apparatus is required, it should be procured and installed before the arrival of the busy season.

If a new floor is needed, it should be put in at this time. It is also the proper time for painting the walls and ceiling, if it is necessary, and there are few creameries at this season where such treatment would not be beneficial. More time is now available and can be better spared than at any other season for any necessary repair work. In short, spring is the time to give attention to all matters affecting the efficiency of the plant.

One of the most important things in the management of a creamery is to adjust conditions and methods so that they are at all times in harmony with the requirements of the prevailing season. An incompetent manager makes no changes, as a rule, until he is compelled to do so by force of circumstances, while an able manager anticipates the seasonal requirements and prepares himself to meet them as soon as they appear.

In the spring of the year there are many things which should be given special attention by the butter maker and the creamery manager. If the spring cleaning has not been done it should be attended to without delay, for the busy season will soon be here—the season of long days and hard work when there will be no chance to attend to anything but the regular everyday duties. The surroundings of the creamery should be cleared of all rubbish; drives, flower beds, etc., should be put in proper order so that the factory may present a tidy and attractive appearance. In the creamery proper the walls, the ceiling, and the windows generally need washing and the refrigerator requires thorough cleaning. Perhaps the entire building needs painting both inside and outside. The doors, the windows, and the receiving room, or intake, should be properly screened. If the receiving room is left open thousands of flies will enter the building, though the doors and windows are screened; hence, where the building is so arranged that the intake cannot be screened it should be changed without delay. Flies are filthy, insanitary insects and should never be tolerated in a creamery.

As the atmosphere becomes warmer it will generally be necessary to reduce the ripening temperature of the starter and of the cream, especially during the months of May and June. In most cases the churning temperature can be reduced from 4 to 6 degrees from that in use during winter. When the cows have been turned out on pasture the color of the butter will be increased naturally from day to day and the amount of artificial color used should therefore be diminished accordingly.

DANGER FROM COPPER IN CELERY LESSENED.

The table celery which has been coming into the market recently shows a distinct improvement over last year's in its comparative freedom from copper, according to reports received by the department. Copper on celery is found in the form of dried Bordeaux mixture (lime and copper sulphate) which is used extensively to prevent the destruction of the crop by blight. The use of salts of copper in food products has been pronounced by the referee board injurious to the health, but on the other hand, it has been found practically impossible to bring celery to market in good condition unless the plants have been sprayed at certain periods of growth with Bordeaux mixture.

To meet this difficulty the Department of Agriculture issued a warning to growers last year, prescribing the method of spraying and urging housewives to be particularly careful in washing all celery before using it. The effect of this warning is now becoming apparent, for the celery is reaching the market in better condition than in the past.

In investigating the question the department discovered that the presence of copper was due to faulty spraying apparatus, usually the employment of knap-

sack sprayers instead of power outfits. These do not operate at a sufficiently high pressure to make a fine spray or mist. As a result the Bordeaux mixture is applied in a number of fine streams and these, instead of merely settling on the leaves, as a mist would do, run down between the stalks. Thus the mixture accumulates at the base of the plant and is not washed out by the rain. This sometimes gives a blue-green appearance to the celery, which many people imagine to be due to Paris green; as a matter of fact the green tint is that of a copper-stained lime.

When spraying is done properly an efficient apparatus is used, working under high pressure—100 pounds or more. Spraying is stopped when the leaves are covered with fine drops and before these begin to run down the stalks and accumulate at the base of the plant. The leaves, it is pointed out, should not be eaten under any circumstances.

However careful the grower may be in his spraying, the consumer must also do his part. The bunches of celery should be broken open and the stalks washed and scrubbed thoroughly before they are eaten. This, chemical analysis shows, will remove nearly all of the copper found in dried Bordeaux mixture from the stalks and eliminate danger of any bad effects to the consumer.

MAKING BACON IN GEORGIA.

The Southern States at one time years ago produced large numbers of hogs and cured practically all of the bacon necessary to feed the people. At the present time the same can not be said of a single Southern State and of but few counties in any of these States. There is one county in Georgia, however, that is showing others what can be done in raising hogs. Brooks County holds the distinction of producing and selling more bacon than any other county in Georgia. Recently 22 wagon loads of cured bacon were delivered at Quitman in one day. This amounted to 45,000 pounds.

Last year Brooks County raised the meat necessary for home consumption, shipped out several carloads of hogs, and in addition sold 150,000 pounds of bacon at an average price of 14 cents a pound. This year it is estimated that Brooks County will sell 250,000 pounds of bacon in addition to what is needed for home consumption and the large numbers of hogs shipped to the markets. About 1,000 head of fat cattle will also be marketed from the county. The raising of live stock has not been accomplished at a sacrifice of other crops, but has been produced in addition to the regular crops, with the result that those who have taken up this line of work are becoming the leading and the most prosperous farmers in the county. The cash receipts for the live stock and bacon sold from the county is near $100,000.

What is being done in Brooks County it is believed could be done in every county in the South. This would put the farmer on a better financial footing, because he would not be dependent upon cotton as his sole cash crop. Bacon can be made a most profitable cash crop, which can be marketed in early spring when farmers are so often in need of ready money.

The boys of Brooks County have manifested great interest in the organization of pig clubs and an exceedingly creditable exhibit will probably be made by the boys at the county fair in the fall.

WARNING TO COTTON MILLS TO BURN ALL EGYPTIAN COTTON SEED OBTAINED FROM IMPORTED LINT.

The Federal horticultural board has issued a notice to all cotton mills, and especially those in the South, to destroy by burning all seed that may be found in bales of imported Egyptian cotton. These seed are likely to contain the larvæ of the pink boll worm which is very destructive to American cotton. The number of seeds of Egyptian cotton found in a bale of Egyptian lint is probably small and the presence of any seed in such bales is due to faulty ginning. Ginning and storing, however, does not kill the larvæ of the pink boll worm, which has been known to withstand storage in cotton seed for more than seven months.

So dangerous to the cotton crop of the United States is the pink boll worm regarded that on May 28, 1913, a quarantine was promulgated designed to prevent the introduction into the United States of this worm by forbidding the importation of cotton seed from all foreign countries excepting two regions in Mexico. Since that date several shipments of cotton seed infested by this worm have been intercepted and destroyed.

While the number of seeds accidentally left in a bale of cotton is probably small, a very large quantity of baled Egyptian cotton is imported, so that in the aggregate the number of infested seeds might well prove a serious menace to the local crop. This is especially true in view of the fact that much of this baled cotton is shipped to southern cotton mills which in some cases are in the immediate vicinity of cotton fields which would form a ready breeding place for any larvæ that might escape. The mere keeping of the seeds taken from these bales by reginning might give an opportunity to the pink boll worm to breed and escape into neighboring cotton fields. Mill owners, therefore, are urged to destroy all such cotton seed without delay by burning it under their boilers.

The horticultural board has begun an investigation to determine the amount of infestation by the pink boll worm in the seed thus introduced. An agent will visit the northern and southern mills for this purpose. The elimination of the danger by improved methods of ginning or possibly by further quarantine regulations will have early consideration.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., MAY 13, 1914 No. 40

ANIMALS SLAUGHTERED UNDER FEDERAL MEAT INSPECTION, FEBRUARY, 1914.

Place.	Cattle.	Calves.	Sheep.	Goats.	Swine.
Chicago	111,241	19,891	313,454	4	467,888
Kansas City	54,681	5,442	115,626	468	169,753
National Stock Yards	21,748	3,876	35,557	52	107,974
South Omaha	37,527	1,659	154,915	2	204,964
South St. Joseph	14,788	1,338	56,9.	2	137,405
All other establishments	259,006	67,659	435,964	700	1,634,779
Total	498,991	99,865	1,112,500	1,228	2,722,763

IMPORTS OF CATTLE, MEATS, AND MEAT FOOD PRODUCTS.

The imports of cattle, meats, and meat food products inspected by the Bureau of Animal Industry during February, 1914, are shown in the following tables:

CATTLE.

Country of export.	For slaughter.	Feeders.	Dairy and breeding.	Total.
Canada	1,956	107	158	2,221
Mexico	9,586	98,206	7	107,799
Total	11,542	98,313	165	110,020

MEATS AND MEAT FOOD PRODUCTS.

Country of export.	Fresh and refrigerated meats.		Canned and cured meats.	Other products.	Total.
	Beef.	Other.			
Argentina	4,346,565	.....	50,801	222,115	4,619,481
Canada	347,933	278,751	163,974	19,637	810,295
Australia	977,746	186,300	671,019	.....	1,835,065
Uruguay	2,401,855	892,225	6,759	.....	3,300,839
Other countries	.....	5,881	67,402	127,323	200,606
Total	8,074,099	1,363,157	959,955	369,075	10,766,286

A BIRD CENSUS OF THE UNITED STATES.

BIRD LOVERS ARE INVITED TO SEND DATA TO THE DEPARTMENT TO AID IN GAME PRESERVATION.

A census of all the birds of the United States is suggested for this summer, and the department invites bird lovers throughout the country to cooperate in taking it. The object is to determine how many pairs of birds of each species breed within definite areas. By comparing these figures with those of subsequent censuses it will be possible to ascertain whether the present State and Federal laws are effective and game and insectivorous birds increasing or diminishing in numbers. Voluntary observers are relied upon to furnish most of the desired data to the department.

As a beginning the department has asked about 250 correspondents throughout the country, who have previously rendered valuable service, to follow a general outline in supplying information. Anyone wishing to aid in this good work is cordially invited to send similar information to the department.

The correspondents have been advised that the census of the birds should be taken over some area that fairly represents the average character of the country in the immediate neighborhood. The area selected should represent average farm conditions, but without woodland; should be not less than 40 acres (a quarter of a mile square) and not more than 80 acres, and should include the farm buildings, shade trees, orchards, fields of plowed land, and pasture.

It is desired to take a census of the pairs of birds actually nesting within the selected area. Birds visiting the area for feeding purposes should not be counted, no matter how close their nests to the boundary lines.

It is practically impossible to make this census on the scale of 40 to 80 acres in a single day. A plan which has been used with advantage for several years is to begin at daylight some morning the last of May, or the first week in June, and zigzag back and forth across the area, counting the male birds of each species. Early in the morning at that season every male bird should be in full song and easily counted. After the migration is over and the birds are settled in their summer quarters, it is safe to consider that each male represents a breeding pair.

The census of one day should be checked and revised by several days of further work, in order to insure that each bird seen is actually nesting within the area and to make certain that no species has been overlooked.

May 30 is about the proper date to begin the census in the latitude of Washington. In the latitude of Boston the work should not begin until a week later, and south of Washington an earlier date should be selected.

The final results of the census should be sent to the Biological Survey, Department of Agriculture, Washington, D. C., about June 30, and should be accompanied by a statement of the exact boundaries of the selected area, defined so explicitly that it will be possible 25 years hence to have the census repeated. The name of the present owner of the land should be given, together with a careful description of its character, including a statement whether the area is dry upland or moist bottom land, the number of acres in each of

the principal crops or in permanent meadow, pasture, orchard, swamp, roads, etc.; the kind of fencing used, and whether there is much or little brush along any fences, roads, or streams or in the permanent pasture.

A second census desired is one of some isolated piece of woodland comprising from 10 to 20 acres. In giving the results of this census the number and kinds of trees in the woodland should be stated as well as whether there is much or little undergrowth.

Still a third census to be taken is that of some definite area—40 acres, for instance—forming part of a much larger tract of timber, either deciduous or evergreen. While the number of birds on such a piece of land will be far less than on an equal area of mixed farm land, their correct enumeration will require considerably more care and time.

The department also will be glad to have information concerning any changes noted in the bird life of any locality, especially if the observations extend over any considerable number of years.

In the past, under mixed game regulations of various States, bird life has been decreasing. Now that the birds have been placed in charge of the United States Department of Agriculture, definite and uniform measures are being taken to preserve them and increase their number. The new bird census and the censuses to follow will materially aid the department in its effort to preserve a valuable national resource, and the voluntary efforts of bird lovers in aid of this movement will be appreciated.

CRIMSON CLOVER A USEFUL CROP.

A number of ways in which the early appearance of crimson clover in the spring can be turned to the farmer's advantage are pointed out in Farmers' Bulletin 579, "Crimson Clover Utilization." In the Southern and Central Atlantic States this crop is of particular value. Generally speaking it suffers from the severe winters in the North and from too great dryness west of the Mississippi. In Florida also it has proved less successful than elsewhere.

Crimson clover, says the bulletin, has two great advantages. It is an excellent fertilizer and it can be used for pasture and hay before any other green growth is available, the land being then sown with an ordinary summer-grown crop. The clover itself can be sown toward the end of the summer on land where such late crops as corn or tomatoes are still under cultivation. Its use, therefore, does not interfere with other products and its benefits cost little but the labor and seed involved.

To obtain the full value of crimson clover as a fertilizer, the entire green crop should be plowed under, thus adding to the soil a large quantity of nitrogen and humus, or decayed vegetable matter. The poorer the land the greater is the benefit that the succeeding crop derives from this process. A yield of 30 bushels of corn per acre may ordinarily be increased by crimson clover to 45, but on richer land an increase of more than 10 bushels is uncommon. A convenient method of calculation is to consider a full crop of crimson clover, weighing, with roots and tops, about 10 tons an acre, as the equivalent of a distribution of 8 tons of fresh barnyard manure to an acre. In this way the soil is greatly enriched each year without interfering in any way with the regular money crops, such as corn, cotton, or tomatoes.

It is, however, by no means necessary to sacrifice the entire crop of crimson clover to fertilizing purposes. Excellent results can be obtained by plowing under merely the roots and stubble. This, it is estimated, returns to the soil 40 per cent as much nitrogen as the green crop. When this is done the clover itself can be used either for pasture, before ordinary grass is sufficiently far advanced to be available or for hay which can be gathered in time to leave the land free for another crop.

Crimson clover intended for hay must, however, be cut at the right moment, when the most advanced heads are beginning to show faded flowers at their base. At this stage the plants contain the maximum amount of protein and dry matter, while the leaves are still present and the stems comparatively green. If the harvest is put off, the short hairs on the stems and flower heads become dry and stiff. In this stage there is danger that they may form hard hair balls in the intestinal tracts of horses and mules to which the hay is fed. These hair balls, solid, compact, feltlike structures, nearly always cause death. Early cutting, however, and judicious mixing with other hay will obviate this difficulty to a great extent, and, under any circumstances, cattle are rarely affected. By dairymen, crimson-clover hay is considered a roughage feed fully equal if not superior to either red or alsike clover.

For early pasturing crimson clover is even more satisfactory, its chief drawback being the limited period in which it can be utilized for this purpose. This period, however, is ample to enable the ordinary grass pastures to attain a growth which will greatly increase their carrying capacity later in the season. After the cattle are removed, the uneaten plants and the manure left behind are plowed under, the manure of course forming a valuable addition to the fertilizing effect of the clover.

As pasture, hay, or fertilizer, therefore, crimson clover offers itself to farmers at a time when the ordinary summer-grown crops are not available. Incidentally, it should be said, this clover is valuable for poultry. A tubful of hand-cropped leaves thrown into the poultry yard will provide the chickens with the best possible green food at a season when eggs are ordinarily high and everything that promotes laying is most welcome. Small patches of crimson clover are, in fact, grown by poultry raisers for this purpose alone.

Methods of growing the crop, the preparation of the seed bed, and the soils and sections best adapted to the purpose are discussed in a previous publication of the Department of Agriculture, Farmers' Bulletin 550, "Crimson Clover: Growing the Crop." Both this bulletin and the new bulletin "Crimson Clover: Utilization," will be sent free on request.

ALABAMA WINS BOYS' CORN CLUB CONTEST.

The Alabama corn clubs have won the trophy offered by business men of Louisville, Ky., for the team of 10 boys in any Southern State who could show the best records in corn growing at the Conference for Education in the South on April 10. The competition was very close, and it is said that there has never been a better set of records made, since the corn-club work was established. The trophy is a medallion bust of the late Dr. Seaman A. Knapp, the founder of the farm demonstration work. Each member of the team is also to receive a miniature of the medallion in the form of a watch charm.

These 10 Alabama boys produced 1,718.3 bushels of corn on 10 acres, at an average cost of $0.182 cents per bushel, or $31.73 per acre. The average profit was $140.14. This means that a profit of $1,401.40 was made on 10 acres, estimating the corn at $1 per bushel. As a matter of fact, much of the corn has been sold for seed at $2 to $3 per bushel. The individual records of the members of the team were:

Ten best records for 1913 in Alabama corn clubs.

Name of boy.	Yield.	Total cost.	Cost per bushel.	Profit.
	Bush.			
Walker Lee Dunson, Alexander City, R. No. 6, Tallapoosa County	232.50	$46.40	$0.19	$186.10
Ewell Hickman, Troy, R. No. 6, Pike County	222.25	48.88	.22	173.37
Terry Machen, Sycamore, Talladega County	176.40	28.80	.16	147.60
Junius Hill, Attalla, R. No. 1, Etowah County	179.18	33.57	.192	145.93
Glover Wigley, Boaz, R. No. 6, Marshall County	180	36.20	.20	143.80
W. Roy Holley, Eclectic, R. No. 3, Elmore County	162.53	20.00	.12	142.53
Harbon Thrower, Heflin, R. No. 3, Cleburne County	164.75	24.95	.15	139.80
Dorson Hall, Wadley, R. No. 3, Chambers County	133.75	24.38	.18	109.37
James A. Wilson, Gadsden, R. No. 1, Etowah County	139.35	32.70	.23	106.73
Uless Stone, Malone, R. No. 2, Randolph County	127.60	21.40	.18	106.20
Average	171.83	31.73	.182	140.14

The business men of Louisville also offered a trophy for the best record of canning club work done by a team of 10 girls from any Southern State. The trophy consisted of a silver medallion bust of the late Dr. Seaman A. Knapp and 10 silver pendants, each containing a smaller reproduction of the medallion to be presented to each of the girls in the prize team. Exhibits and records were shown from each of the 15 Southern States and were inspected by thousands of visitors.

Ten canning club girls of Mississippi won the girls' trophy for their State. They produced 27,850 pounds of tomatoes from their gardens of a tenth of an acre each. From these plots these 10 girls canned 29,379 No. 2 cans of tomatoes and other vegetables. The value of these products, including the vegetables used at home, was $1,179.92, and the total profit, $868.66. The average cost of gardening and canning per tenth acre was $29.93.

The finest individual record in tomato growing in the United States in 1913 was made by Miss Clyde Sullivan, a 14-year-old canning club member of Ousley, Ga., who produced 5,354 pounds of tomatoes on a tenth acre and canned 2,254 No. 2 cans, 212 No. 3 cans, and made 60 pints of catsup. The entire receipts from this tenth acre were $229.26 and the profit $132.39.

The best county record is that of Etowah County, Ala., where 104 girls reported more than 30,000 No. 3 cans of tomatoes, having a value of $3,600.

The individual records of the Mississippi winners were:

Ten best records in Mississippi canning clubs, 1914.

Name of girl.	Address.	Yield in pounds.	Profit.	Cost.
1. Sallie May Strahan	Brookhaven	2,390	$145.25	$13.00
2. Verlie Hilbun	Soso	2,820	111.25	26.00
3. Thelma Smith	Wesson, No. 2	2,780	108.00	14.61
4. Julia Pitts	Hermanville	2,975	104.77	43.90
5. Clara Polk	Mount Olive	3,840	85.24	45.81
6. Eliza Hutchison	Sturgis	2,321	68.84	33.26
7. Grace Quarles	Long Beach	3,086	53.00	27.20
8. Annie Powell	Ballground	3,080	61.30	37.10
9. Annie Martin	Oak Ridge	2,108	66.65	35.45
10. Ruby Daffin	Wisdom	2,550	43.76	22.89

ANGORA GOAT RAISING PROFITABLE IN AMERICA.

The raising of Angora goats in the United States is now a demonstrated success. The industry is indeed so well established here that growers need not be inconvenienced by the action of South Africa in prohibiting the exportation of Angoras, for the quantity of good blood in this country is already sufficient to meet all requirements. In the opinion of experts the best American fleeces now equal any grown in South Africa or Asia Minor, the original home of the Angora.

Although nearly every State in the Union now possesses its flocks, the Southwest and the Northwest are especially well adapted to the industry, in particular the large areas recently logged-off in the Northwest. There the Angora not only thrives himself but helps to clear away the brush which, if allowed to grow unchecked, might easily become a dangerous fire trap. Thus it is often said that the Angora works and pays for its board at the same time.

It is paying more and more, for the value of the fleece or mohair is increasing steadily. Formerly the use of mohair depended so largely upon the prevailing fashion that its price varied widely from year to year. This condition, however, is rapidly changing as new uses for mohair are continually found, from automobile tops and table covers to dress goods and curled false hair, and to-day the grower is assured of a reasonably steady market. The price of course varies with the quality, the very best fleeces bringing on an average from 42 to 55 cents a pound. The weight of a

fleece has a very wide range, but in 1909 the average for Oregon was found to be 3.7 pounds and for Texas 1.85. On account of the greater heat, however, and the damage of shedding, Angoras in the Southwest are frequently shorn twice a year—a fact which must be taken into consideration in all calculations.

This practice of clipping twice a year is in many ways a drawback to the industry since it tends to lower the average grade of American mohair. Mohair as good as any can be and is grown in this country, but the average quality is not to-day considered to be as good as the foreign. About 2,000,000 pounds are annually imported. Ordinarily this is blended and spun with the domestic product. Six inches is the shortest length of fleece usually desired and, because of shearing twice a year, much Texas and New Mexico mohair falls below this standard. Where the fleece is allowed to grow for 12 months, the average length is 10 inches and in the best flocks it is not unusual to get 15 to 20 inches. Romeo, the sweepstakes buck at the El Paso show in 1910, is an example of what is possible. His fleece weighed 18 pounds, measured 20¾ inches in length, and sold for $115. Such fleece is not of course the product of ordinary commercial conditions. It implies a considerable amount of care and personal attention.

The birth rate is approximately 65 per cent, but in well-managed flocks this has risen on occasions as high as 120 per cent. Since the kids are not hardy, it is obvious that this means skill and industry during the breeding season. The best methods of caring for the flock at this time are discussed in some detail in a new bulletin. Otherwise the management of Angoras does not differ greatly from that of sheep.

While the Angora goat needs attention, it is adaptable, and, as far as temperature is concerned, should flourish in any part of the United States. In Montana the flocks face the heavy snowfalls with equanimity as long as a dry place is provided for them at night, and, though the heat in the Southwest frequently makes it necessary to shear twice a year in order to prevent shedding, it does not otherwise affect the health of the flocks. Dampness, however, is more injurious than either cold or heat. High land is the native home of all goats, and they invariably seek it when left to themselves. Pure water is also an essential.

Otherwise the Angora is not particular. It will feed with cattle and sheep, and, though in some danger of being kicked, with horses also. As a matter of fact, however, the goat prefers a certain amount of rough pasture, and is particularly happy when cleaning up brush land. There is one instance of a flock of 600 being allowed free grazing in a California forest reserve in order to keep the strips of cleared land, known as fire breaks, free from weeds and vegetation. Settlers in the Northwest find the Angora most serviceable in browsing off the brush on their new lands, and one interurban railway company purchased a flock to keep its right of way clear and attractive. On very rough land the danger of injury to the fleece must, however, be kept in mind.

As has already been said, the Angora can be bred sufficiently pure for practical purposes from the stock already in this country, and there is no need of further importations for breeding purposes. Some years ago, however, this was not believed to be the case, and in 1881 the Sultan of Turkey endeavored to preserve for his dominions the monopoly of the mohair trade by prohibiting the exportation of the live animal. His example was followed by South Africa, but it was too late. Some of the best blood was already in America, and to-day other countries are buying of us, flocks having been shipped recently to Brazil and the Argentine.

Various associations have already been formed for the development of the industry in this country, and the quantity of the annual product is increasing rapidly. In 1913 it is estimated that 5,000,000 pounds of mohair were grown in the United States. Fuller details of the management and care of flocks are to be found in Farmers' Bulletin 573, "The Angora Goat," which will be sent free on application to the department.

FEDERAL QUARANTINE AGAINST MAINE POTATOES.

A quarantine against Maine potatoes, effective August 1, 1914, has been declared by the United States Department of Agriculture on account of the prevalence of powdery scab in that State, particularly in Aroostook County. After August 1 no common or Irish potatoes can be moved out of Maine except under regulations which the Department of Agriculture will publish shortly. Powdery scab has been prevalent for some time among Maine potatoes, but hitherto the State authorities have been responsible for preventing the spread of the disease. With the enforcement of the new quarantine, the Federal Government will take charge of the work. There will be, it is said, no radical change in the existing restrictions.

FACTORS OF PROFITABLENESS IN FARMING.

1. Low real estate prices.
2. Farm products of classes deficient in supply.
3. Magnitude of the farm business, measured either by land farmed or amount of labor required.
4. High quality in products.
5. Reputation of the producer: Applies especially to the production of pure-bred breeding stock.
6. Advantageous marketing.
7. Productiveness of animals kept.
8. Largest yield with relatively little labor and fertilizer.
9. Low cost of production. (Involves good farm organization.)
10. Stability of profit depends on the staple character of the products.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., MAY 20, 1914. No. 41

ABOLISH GUARANTY LEGEND AND SERIAL NUMBER ON FOOD AND DRUGS.

ARE DECEPTIVE AND MISLEADING TO THE PUBLIC, THE THREE SECRETARIES FIND—PROHIBITION TO TAKE EFFECT MAY 1, 1915—NO MORE SERIAL NUMBERS TO BE ISSUED OR GUARANTIES ACCEPTED AFTER THAT DATE.

The legend "Guaranteed Under the Food and Drugs Act" is held to be misleading and deceptive, and the use of a serial number on food and drugs is prohibited after May 1, 1915, by a food inspection decision signed May 5 by the Secretaries of the Treasury, Agriculture, and Commerce. The taking effect of the new regulation is postponed until May 1, 1915, in order to give manufacturers an opportunity to use up their present stocks of labels.

After May 1, 1915, guaranties of compliance with the law should be given by manufacturers directly to dealers and should be incorporated in the invoice or bill of sale specifying the goods covered. This guaranty should not appear on the label or package of the product.

REASONS FOR ACTION.

The reasons for the action of the three Secretaries, as given in the decision, are as follows:

(*a*) It having been determined that the legends "Guaranteed under the Food and Drugs Act, June 30, 1906," and "Guaranteed by (name of guarantor) under the Food and Drugs Act, June 30, 1906," borne on the labels or packages of food and drugs, accompanied by serial numbers given by the Secretary of Agriculture, are each misleading and deceptive, in that the public is induced by such legends and serial numbers to believe that the articles to which they relate have been examined and approved by the Government, and that the Government guarantees that they comply with the law, the use of either legend, or any similar legend, on labels or packages should be discontinued.

Inasmuch as the acceptance by the Secretary of Agriculture for filing of the guaranties of manufacturers and dealers and the giving by him of serial numbers thereto contribute to the deceptive character of legends on labels and packages, no guaranty in any form shall hereafter be filed with and no serial number shall hereafter be given to any guaranty by the Secretary of Agriculture. All guaranties now on file with the Secretary of Agriculture shall be stricken from the files, and the serial numbers assigned to such guaranties shall be canceled.

Many reputable manufacturers have used the legend and serial number in good faith solely as a convenient way of notifying a dealer that they assumed full legal responsibility for their goods. Other manufacturers have employed this legend in such way as to lead the public to believe that their product had been passed upon and certified by the Department of Agriculture. The widespread deception of the public resulting necessitated abolishing the department's practice of accepting guaranties for filing and issuing serial numbers.

The Food and Drugs Act does not prescribe any guaranty legend or serial number, nor has any manufacturer ever been required to file a guaranty or to use a serial number or the legend. The appearance of the serial number and the guaranty legend on the products, moreover, has been of no material assistance to the Government in detecting or prosecuting violations of the Food and Drugs Act, nor has it promoted the manufacture and sale of pure foods or drugs. The presence of the number and legend on an adulterated or misbranded product does not enable Federal officers to secure any heavier penalty for violations than if the goods were not so labeled, although in many such cases it made deception of the public more certain.

The only mention of a guaranty in the Food and Drugs Act is section 9, which provides that where a dealer can show a guaranty from the maker of goods that they comply with the law, the manufacturer, and not the dealer, shall be amenable to prosecution.

HISTORY OF THE GUARANTY LEGEND.

The manufacturers believed it to be commercially inconvenient to give a separate guaranty as part of the bill of sale or invoice to every dealer with every interstate shipment of their goods, and soon after the passage of the act of 1906 asked the committee appointed by the three Secretaries to draft regulations to allow them to file a blanket guaranty to dealers at Washington under which the makers of goods would assume full legal responsibility for all goods manufactured by them and shipped into interstate commerce. This guaranty was not in any sense to be a guaranty to or by the Government, but was merely to be a guaranty protecting the dealer from prosecution in accordance with section 9 of the Food and Drugs Act. This permission was granted, and the department assigned a serial number to each of the guaranties so filed. The manufacturer was then allowed to use this serial number on this label in connection with the legend, "Guaranteed under the Food and Drugs Act, June 30, 1906." There was no requirement, however, that any manufacturer should file such a guaranty.

A large proportion of the public took these words to mean that the Government in some way guaran-

teed the article. In an endeavor to make it clear that the guaranty was not the guaranty of the Government, the legend was amended December 8, 1908, to read "Guaranteed by (name of guarantor) under the Food and Drugs Act, June 30, 1906." The public, however, persisted in taking these words, even after the amended form was employed, to mean that the Federal Government had actually analyzed and found the product so labeled to be pure and wholesome and of standard quality. This misinterpretation on the part of the public was, in some cases, encouraged by manufacturers, and there is no question that the serial number and legend were used in some instances to increase the sale of highly undesirable foods and drugs for interstate shipment of which the manufacturers were later prosecuted and fined.

ONLY INDIVIDUAL GUARANTIES TO BE PERMITTED.

The only guaranty approved by the new regulation for use after May 1, 1915, is the individual guaranty identifying the goods sold by the manufacturer to the dealer. This guaranty, can be incorporated in the invoice or bill of sale specifying the goods covered by use of a form, stamped, or printed in the document, and signed by the manufacturer. When the goods are properly described in the document, they can be referred to in the guaranty, without repetition of the detailed description contained in the invoice or bill of sale. This guaranty should not appear on the label or package of the product. In the meanwhile the public is notified that the presence of a serial number and the words "Guaranteed under the Food and Drugs Act" on packages merely means a guaranty to the dealer that the manufacturer is legally responsible for his goods, and in no sense implies that the Federal authority has investigated or approved the quality of the goods so labeled.

The remainder of the regulation which deals with the method of using the guaranty is as follows:

(*b*) The use on the label or package of any food or drug of any serial number required to be canceled by paragraph (*a*) of this regulation is prohibited.

(*c*) Any wholesaler, manufacturer, jobber, or other party residing in the United States may furnish to any dealer to whom he sells any article of food or drug a guaranty that such article is not adulterated or misbranded within the meaning of the Food and Drugs Act, June 30, 1906, as amended.

(*d*) Each guaranty to afford protection shall be signed by, and shall contain the name and address of, the wholesaler, manufacturer, jobber, dealer, or other party residing in the United States making the sale of the article or articles covered by it to the dealer, and shall be to the effect that such article or articles are not adulterated or misbranded within the meaning of the Federal Food and Drugs Act.

(*e*) Each guaranty in respect to any article or articles should be incorporated in or attached to the bill of sale, invoice, bill of lading, or other schedule, giving the names and quantities of the article or articles sold, and should not appear on the labels or packages.

(*f*) No dealer in food or drug products will be liable to prosecution if he can establish that the articles were sold under a guaranty given in compliance with this regulation.

VISITING RURAL NURSE MEETS WITH APPROVAL IN CHILTON COUNTY, ALA.

In order to give a practical test to the value of a visiting nurse in rural communities, representatives of the rural organization service of the department helped the people of Chilton County, Ala., to organize for the purpose of appointing a visiting trained nurse and meeting her salary and expenses. For this purpose the sum of $1,500 was raised, of which the county board appropriated $500, the school board $500, and private individuals $500. The services of a visiting nurse, certified by the National Red Cross Society, were secured at a salary of $960 per year and actual expenses. In the expenses were included the purchase of a horse and buggy and stabling and feed for the horse.

In order to enable the county to appoint the nurse as a county officer, the nurse applied for and obtained a third-grade teacher's certificate, which enabled her to be appointed as assistant county superintendent of schools. To direct her work and disburse the money raised and appropriated, the following committee was appointed: The county health officer, county superintendent of schools, county agent for farmers' cooperative demonstration, county head of the girls' canning club work, and a local physician.

The nurse has been actually engaged in her work now for more than one month. Her work has been as follows:

School visiting.—By degrees she is visiting every rural school in the county and at these schools is making an inspection of pupils to detect signs of contagious diseases and to discover defects in teeth, presence of adenoids, diseases of the eyes, or similar physical conditions calling for medical or other attention. In addition she inspects the school grounds with special reference to sanitary appliances in their relation to the spread of disease. She also lectures to the teachers and pupils on methods by which diseases are carried or spread, giving particular attention to the danger of the fly as a carrier of typhoid and the necessity for keeping water supplies and food uncontaminated.

Mothers' meetings.—Wherever opportunity is given, the nurse holds mothers' meetings at which she talks and gives demonstrations on care and feeding of infants, home and general hygiene and sanitation, with special reference to sources of diseases and measures for preventing their spread.

Sick nursing.—In special cases where rural patients are dangerously ill, the nurse, at the request of doctors,

visits the home and assists the physician in getting the patient over the crisis.

According to reports from the county the work of the nurse is meeting with great favor on the part of the authorities and the country residents.

COMMISSION REPORTS THAT IT COSTS 55 CENTS A BUSHEL TO RAISE WHEAT IN SASKATCHEWAN.

American wheat growers and farmers will be interested in a report of a commission appointed by the government of Saskatchewan "to examine into the ways and means for bettering the position of Saskatchewan grain in the European markets." Incident to this investigation the commission looked into the cost of producing wheat under present conditions in that Province of Canada. The wheat producers of various sections of the United States will be interested to know that under present conditions the cost of producing wheat as determined by the commission is reported to be 55 cents per bushel on the farm and 62 cents per bushel f. o. b. cars at country points. According to the report, the cost of production has increased 12.15 per cent since 1909, while, on the other hand, the price of wheat to the Saskatchewan farmer has decreased from 81⅕ cents per bushel in 1909 to 66⅕ cents per bushel in 1913, leaving a net return, on this basis, of 4⅕ cents per bushel to the farmer.

It is possible that the interesting figures which have been developed by the grain commission will account for the fact that a large number of American farmers who have, in recent years, left the States to engage in farming in this territory are now asking for a certificate which permits the return of household effects to the United States. If the economic situation suggested in the above statement is not the cause, perhaps it may be found in the long and rigorous winters characteristic of this section as compared with those in the leading farming districts of the States.

RECENT PUBLICATIONS ON AGRICULTURE.

No publications are sold by the Department of Agriculture, therefore do not send money to the department. Copies of publications listed here will be sent free upon application to the Editor and Chief, Division of Publications, Department of Agriculture, Washington, D. C., as long as the supply lasts. When this department's supply is exhausted publications can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., by purchase only, and at the prices noted here. Send all remittances to the Superintendent of Documents direct. *His office is not a part of the Department of Agriculture.*

Among the most recently issued publications are the following:

Immunization Tests with Glanders Vaccine. 13 pages. (Professional Paper.) (Department Bulletin 70.) Price, 5 cents.

A technical discussion of the use of Mallein as a diagnostic agent for glanders; of interest to veterinarians.

Powdery Scab of Potatoes. 16 pages, 3 illustrations. (Professional Paper.) (Department Bulletin 82.) Price, 5 cents.

This paper will be of interest to plant pathologists and to potato growers in the northern and southern potato-growing sections.

Farmers' Institute and Agricultural Extension Work in the United States in 1913. 40 pages. (Department Bulletin 83.) Price, 5 cents.

This publication is of interest to farmers' institute workers in the United States and Canada.

Experiments With Udo, The New Japanese Vegetable. 15 pages, 12 illustrations. (Department Bulletin 84.) Price, 5 cents.

Results of experiments in Maryland. Gives methods of cultivation, preparing, and cooking. Adapted to New England, the Atlantic States as far south as the Carolinas, the rainy region of Puget Sound, and the truck sections of California about Sacramento.

The Cost of Pasteurizing Milk and Cream. 12 pages. 1 illustration. (Professional paper.) (Department Bulletin 85.) Price, 5 cents.

This bulletin deals with the cost of pasteurization from an engineering point of view. It contains desirable information for proprietorso f creameries and milk plants and for designers and manufacturers of pasteurizing apparatus.

Texas or Tick Fever. 24 pages. 5 illustrations. (Farmers' Bulletin 569.) Price, 5 cents.

This bulletin is a revision of and supersedes Farmers' Bulletin 258. It is of interest to farmers throughout the South.

The Angora Goat. 16 pages. 6 illustrations. (Farmers' Bulletin 573.) Price, 5 cents.

This is a popular paper suitable for present and prospective Angora goat raisers. It is especially adapted to the Southwest and the recently cleared portions of the North and Northwest.

Poultry House Construction. 20 pages. 13 illustrations. Farmers' Bulletin 574.) Price, 5 cents.

This bulletin gives practical instruction for locating and constructing poultry houses. It is adapted for general circulation.

Crimson Clover: Utilization. 10 pages. 7 illustrations. (Farmers' Bulletin 579.) Price, 5 cents.

This publication gives time of cutting, methods of harvesting, feeding value, and use as a soiling crop, as pasture, as a soil improver, and as a cover crop. Adapted to the Eastern States.

Beef Production in the South. 20 pages. 9 illustrations. (Farmers' Bulletin 580.) Price, 5 cents.

Gives instruction in handling and feeding beef cattle, the best breeds for the South, and the best pasture plants. Adapted to the Southern States.

BREEDING HORSES IMPORTED IN 1913.

The Bureau of Animal Industry has listed all horses imported for breeding purposes in 1913, for which certificates of pure breeding have been issued by the Federal department. This list includes names of animals, their registration number, the name of the importer, and the department number for the various breeds. The following table shows the number of certified horses imported for breeding purposes during 1913:

Breeds.	Stallions.	Mares.	Total.
Belgian	621	362	983
Clydesdale	45	53	98
Hackney	14	29	43
Percheron	882	600	1,482
Shetland Pony	4	26	30
Shire	128	57	185
Standardbred	1	2	3
Suffolk	12	26	38
Thoroughbred	14	14	28
Welsh Pony	12	95	107
Total	1,733	1,264	2,997

CERTIFIED SEED POTATOES.

In order to provide for the growing and selling, direct to farmers, of seed potatoes guaranteed to be pure bred and free from disease, the Houghton County Potato Growers Association was organized in Michigan at the beginning of this year. The association will specialize at first in the Irish Cobbler as an early and the Sir Walter Raleigh as a medium late variety. The association provides for a system of inspection by committees composed of the county agent and two members from each of the four principal localities in the county. These committees, with the officers of the association, form the executive committee. There are no dues, but to defray the expenses of the association a fee of 5 cents is charged for each bushel of certified seed potatoes sold through its agency. The association aims to dispose of the seed potatoes among the farmers rather than to dealers.

GLANDERS VACCINE NOT SATISFACTORY.

That glanders vaccine is not effective in rendering horses immune from this dangerous disease is the conclusion reached by specialists of the Bureau of Animal Industry as a result of extensive experiments with horses and other animals. The experiments show that while mallein is highly effective as a means to discover the presence of glanders in a horse, neither mallein nor glanders vaccine has shown any positive value in curing animals sick with glanders.

In the experiments 17 horses were used. These were stabled under such conditions that vaccinated and unvaccinated horses could be brought into contact with a good discharging case of glanders. Mallein and eye tests were used carefully to determine the results. The investigators report the following conclusions, which appear in a professional paper published by the department entitled "Immunization Tests with Glanders Vaccine":

The results obtained by these investigations appear to be sufficient to demonstrate the unsatisfactory results of this method of immunization. Of the 13 immunized animals, 9 contracted the disease from natural exposure, which is a large proportion when it is considered that all animals were aged and kept most of the time during the exposure out of doors. Of the 4 remaining immunized horses, 1 died of impaction after the second vaccination, while the other 3 animals were killed August 20, 1913, in order to ascertain by post-mortem examination the possibility of glanders existing in these animals which had given positive serum reaction, but which had returned to normal. In artificial infections of the vaccinated animals they showed no resistance whatsoever, as both vaccinated horses promptly developed an acute form of the disease from touching the Schneiderian membrane with a platinum loop which had been touched to a growth of glanders bacilli. For the present, therefore, it seems advisable to abstain from immunizing horses by this method, as a practice of this kind may do more harm than good. Owners having horses which are supposedly immunized would naturally become careless, thinking their animals were resistant to the disease, and thus even a better opportunity would be offered for the propagation of the disease than if the horses were not vaccinated. Furthermore, the fact that the blood of vaccinated animals can not be utilized for serum tests for two or three months after the injections is also a great disadvantage in the eradication of the disease.

As a result of this preliminary work, it appears that the control and eradication of glanders must still be dependent upon the concentration of our efforts in eliminating infected horses and the adoption of proper precautions against the introduction of infected animals into stables free from the disease. The results achieved in Germany, Austria, and Canada by these methods have proved very encouraging, and no doubt if executed in the same spirit in this country a marked reduction in the cases of glanders would result.

WARNING AGAINST DANGEROUS PRESERVING POWDERS AND CANNING COMPOUNDS USED BY THE HOUSEWIFE.

The attention of the department has recently been called to the widespread use, especially in rural communities, of salicylic acid in putting up preserves. The head of a large drug and chemical supply house states that people living in southwest Virginia, North and South Carolina, Kentucky, Tennessee, and western Georgia have been purchasing salicylic acid in one-fourth-pound packages for a number of years and that this practice has grown to an enormous extent. This dealer states further that only a few weeks ago he received an order from one wholesale grocer for 50 gross of these goods.

The department is aware that this practice is not confined to salicylic acid under its own name alone, but that large quantities of this acid, and of boric acid as well, are sold under fanciful names as preserving powders or canning compounds at prices which are much in excess of their real value.

In the directions for use the housewife is told to fill the jar with the fruit or vegetables, cover with water, and add a teaspoonful of the powder. It is true that these powders may prevent the decay of the fruit or vegetable, but they also encourage uncleanly or careless work, and their excessive use may be attended with very serious effects upon the health. Salicylic acid is a medicine of the greatest value in acute articular rheumatism and certain other diseases. It is well known as a poisonous substance, and one of the evils which may accompany its use is derangement of the digestion. It is therefore plain that its extensive use in food may lead to disturbance of digestion and health.

It is entirely practicable to put up both fruits and vegetables in such a manner that, if not opened, they will keep indefinitely, by sterilizing the products by means of heat, and there is no excuse for running any risk by using preserving powders. The Department of Agriculture has issued the following Farmers' Bulletins on canning and preserving:

F. B. 203. Canned Fruit, Preserves, and Jellies.

F. B. 359. Canning Vegetables in the Home.

F. B. 521. Canning Tomatoes at Home and in Club Work.

These bulletins, which may be obtained without cost by applying to the division of publications of the department, give exact directions for canning and preserving foods without the use of preserving powders or canning compounds.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., MAY 27, 1914. No. 42

PACKAGES OF FOOD MUST TELL THE TRUTH AS TO CONTENTS,

The regulations for the carrying out of the so-called "net-weight law," which compels manufacturers to make a clear statement of the weight, volume, or contents of their packages of food, were signed May 11 by the Secretaries of the Treasury, Agriculture, and Commerce. These regulations apply to foods shipped in interstate commerce or sold in the District of Columbia or the Territories. The regulations as signed become effective at once, although the law, passed March 3, 1913, as an amendment to the food and drugs act, defers the exacting of penalties for violations until September 3, 1914.

The regulations, in general, require that the manufacturer of foods shall plainly mark all packages, bottles, or other containers holding more than 2 ounces avoirdupois, or more than 1 fluid ounce, to show the net weight or volume of the contents. The measure must be stated in avoirdupois pounds and ounces, United States gallons, quarts, pints, or fluid ounces, United States standard bushels, half bushels, pecks, quarts, pints, or half pints. The contents by a like method may be expressed in terms of metric weight or measure. The volume of liquids must be computed at 68° F.

The quantity stated on the container must represent the actual quantity of food exclusive of wrappings and container.

In general, solids must be stated in terms of weight and liquids in terms of volume, except that where there is a definite trade custom otherwise any marking of the package in terms that are generally understood to express definite quantities will be permitted. The quantity of viscous or semisolid food or of mixtures of solids and liquids may be stated either by weight or measure, but the statement must clearly indicate whether the quantity is expressed in terms of weight or measure.

In the case of certain articles the contents may be stated by numerical count, provided such numerical count gives accurate information as to the quantity of food in the package. Under this requirement it would not be enough to state that a package of candy contained 24 cream peppermints, as candies vary in size, and this would not be a statement of the actual quantity of candy in the package.

The regulations also permit the statement of minimum volume or weight, as "Minimum weight, 12 ounces"; "Minimum volume, 1 gallon"; "Not less than 4 ounces." In such cases the amount stated must approximate the actual quantity. No variations below the stated minimum quantity will be permitted.

The statement of weight or measure must be marked in terms of the largest unit contained in the package; for example, if the package contains a pound and a fraction, the contents must be expressed in terms of pounds and fractions thereof, or pounds and ounces, and not merely in ounces.

TOLERANCES.

In the packing and bottling of many foods it would be impossible, or else add unnecessarily to cost, for the manufacturer to place an absolutely accurate statement of the amount of the food in every package, and for this reason the regulations permit tolerances or variations in packages where the discrepancies are due exclusively to unavoidable errors in weighing, measuring, or counting which occur in packing conducted in compliance with good commercial practice. This tolerance is allowed in order to permit the use of weighing and measuring machines which, like human operators, can not weigh or measure with absolute accuracy every package. The regulations, however, provide that a run of such packages must show as many cases of overweight and as much excess as it does cases of underweight or undervolume.

Similarly in the case of bottles, which can not be blown with absolute accuracy, tolerances are allowed, but with the same proviso that the run of bottles must show as much excess in volume as deficiency in volume. Queer-shaped bottles must not show greater discrepancies than standard round or square bottles of the same capacity. This means that a manufacturer who uses some special bottle of odd shape can not claim a greater variation because of the difficulty of blowing or manufacturing such a bottle or container.

Because goods shipped from one part of the country to another lose in weight by natural evaporation due to differences of atmospheric conditions or temperature, tolerances will be allowed for such changes. The proper tolerances to be allowed will be determined on the facts in each case, and it is probable that the department will establish tolerances for evaporation for various foods.

Packages containing 2 ounces avoirdupois or 1 fluid ounce of food or less are considered small and are exempted from marking in terms of weight. The reason for this is that providing accurate small bottles and accurately measuring their contents in the case of a

number of articles sold in small packages for 5 or 10 cents would be prohibitive in cost to the manufacturers and would force them to raise the price for the package or to put less food in it for the same price.

GOVERNORS ASKED TO TAKE FIRST STEP TO PUT SMITH-LEVER AGRICULTURAL EXTENSION LAW INTO EFFECT.

The Secretary of Agriculture has written to the governors of all the States asking that they designate the college or colleges to which the funds provided by the Smith-Lever cooperative agricultural extension law are to go. This is the first step in putting into effect this act, approved by the President May 8, which provides for the granting of Federal funds to the State agricultural colleges to aid in diffusing among the people useful and practical information on subjects relating to agriculture and home economics and to encourage the application of the same.

The conditions of the act are that each State must duplicate the money above $10,000 a year appropriated to it by the Federal Government. The money raised by the State may come from the State, county, college, local authority, or individual contributions from within the State, for the maintenance of cooperative agricultural extension work. The governor of each State, in the interval until the legislature meets, is called upon to designate the agricultural college or colleges to which the Federal funds are to be paid.

The act provides that each State in which an agricultural college is designated shall receive as a basic fund from the Federal Government $10,000 annually without additional appropriation from the State. The act then makes provision for additional appropriations to be distributed in the proportion which the rural population of each State bears to the total rural population of all the States, as determined by the next preceding census. To share in these additional funds, however, the State, either through State, county, college, or local funds, or from individual contributions from within the State, must duplicate the additional amounts granted by the Federal Government for the maintenance of the cooperative agricultural extension work provided for in this act.

The Federal money to which each State becomes entitled will be paid in equal semiannual payments on the 1st day of July and January of each year.

The additional appropriations provided for in the act are as follows: Six hundred thousand dollars for the fiscal year following that in which the basic appropriation first becomes available. This $600,000 will then be increased by $500,000 for each succeeding year thereafter for seven years, until the total additional sum appropriated is $4,100,000 annually. This sum and the annual basic appropriation of $480,000 will then be available each year thereafter.

The act, after providing that pending the inauguration of the new work the farm management and farmers' cooperative demonstration work shall not be discontinued, defines the uses to which the Federal moneys shall be put as follows:

> That cooperative agricultural extension work shall consist of the giving of instruction and practical demonstrations in agriculture and home economics to persons not attending or resident in said colleges in the several communities, and imparting to such persons information on said subjects through field demonstrations, publications, and otherwise; and this work shall be carried on in such manner as may be mutually agreed upon by the Secretary of Agriculture and the State agricultural college or colleges receiving the benefits of this act.

The act provides that no appropriation of Federal money shall be applied, directly or indirectly, to the purchase, erection, preservation, or repair of any building or buildings, or the purchase or rental of land, or in college-course teaching, lectures in colleges, promoting agricultural trains, or any other purpose not specified in this act.

Not more than 5 per cent of each annual appropriation may be applied to the printing and distribution of publications, which means that 95 per cent of the appropriation must be devoted to the giving of instruction and practical demonstrations to persons not attending the colleges.

The act also provides that where any of the Federal money so granted to a State shall be diminished or lost or be misapplied the State, until it so replaces the money, can not receive further Federal appropriations.

The following table shows the schedule of appropriations under the act:

Fiscal year.	Basic fund $10,000 to each State.	Additional Federal appropriation to be distributed in proportion to rural population.	Total Federal appropriation.
1914–15	$480,000		
1915–16	480,000	$600,000	$1,080,000
1916–17	480,000	1,100,000	1,580,000
1917–18	480,000	1,600,000	2,080,000
1918–19	480,000	2,100,000	2,580,000
1919–20	480,000	2,600,000	3,080,000
1920–21	480,000	3,100,000	3,580,000
1921–22	480,000	3,600,000	4,080,000
1922–23	480,000	4,100,000	4,580,000
1923 and thereafter	480,000	4,100,000	4,580,000

As the States must provide a like amount for this cooperative agricultural extension work, it means that twice these amounts will be available for this work if each State takes up its full quota.

SILAGE AN EXCELLENT FEED FOR DAIRY CATTLE.

Silage is the main reliance of dairy farmers in many sections for cow feed, since it has been found to be particularly well adapted as feed in this connection, is the statement contained in Farmers Bulletin 578. While silage is an excellent feed for dairy stock, it should be combined with some other leguminous feed, such as clover, cowpeas, or alfalfa, owing to its insufficient productive quality.

The leguminous material will tend to correct the deficiencies of the silage in dry matter, protein, and mineral constituents. A ration of silage and, say,

alfalfa hay alone is satisfactory, however, only for cows which are dry or giving only a small amount of milk and for heifers and bulls. Cows in full milk require some concentrated feed in addition to hay and silage, as they can not consume enough of these feeds to keep up a large flow of milk and maintain body weight.

The amount of silage to feed a cow will depend upon the capacity of the animal to consume feed. She should be fed as much as she will clean up without waste when consumed along with her hay and grain. Raise or lower the amount until the proper quantity is ascertained. Generally speaking, a good cow should be fed just short of the limit of her appetite. If she refuses any of her feed it should be reduced at once. The small breeds will eat 25 or 30 pounds per day; the large breeds 40 or more; and the medium-sized ones amounts varying between.

Ironclad directions for feeding cows can not be given. In general, however, they should be supplied with all the roughage they will clean up with grain in proportion to butter fat produced. The hay will ordinarily range between 5 and 12 pounds per cow per day when fed in connection with silage. For Holsteins 1 pound of concentrates for each 4 pounds of milk produced will prove about right. For Jerseys 1 pound for each 3 pounds of milk or less will come nearer meeting the requirements. The grain for other breeds will vary between these two according to the quality of milk produced. A good rule is to feed seven times as much grain as there is butter fat produced.

The following rations will be found good:

For a 1,300-pound cow yielding 40 pounds of milk testing 3.5 per cent:

	Pounds.
Silage	40
Clover, cowpea, or alfalfa hay	10
Grain mixture	10

For the same cow yielding 20 pounds of 3.5 per cent milk:

	Pounds.
Silage	40
Clover, cowpea, or alfalfa hay	5
Grain mixture	5

For a 900-pound cow yielding 30 pounds of 5 per cent milk:

	Pounds.
Silage	30
Clover, cowpea, or alfalfa hay	10
Grain mixture	11

For the same cow yielding 15 pounds of 5 per cent milk:

	Pounds.
Silage	30
Clover, cowpea, or alfalfa hay	8
Grain mixture	5

A good grain mixture to be used in a ration which includes silage and some sort of leguminous hay is composed of:

	Parts.
Corn chop	4
Wheat bran	2
Linseed meal or cottonseed meal	1

In case the hay used is not of this kind some of the corn chop may be replaced by linseed or cottonseed meal. In many instances brewers' dried grains or crushed oats may be profitably substituted for the bran, and oftentimes gluten products can be used to advantage in place of bran or oil meals.

The time to feed silage is directly after milking or at least several hours before milking. If fed immediately before milking the silage odors may pass through the cow's body into the milk. Besides, the milk may receive some taints directly from the stable air. On the other hand, if feeding is done subsequent to milking, the volatile silage odors will have been thrown off before the next milking hour. Silage is usually fed twice a day.

Calves may be fed silage as soon as they are old enough to eat it. It is perhaps of greater importance that the silage be free from mold or decay when given to calves than when given to mature stock. They may be given all the silage they will eat up clean at all times. Yearling calves will consume about one-half as much as mature stock; that is, from 15 to 20 or more pounds a day. When supplemented with some good leguminous hay, little, if any, grain will be required to keep the calves in a thrifty, growing condition.

One of the most trying seasons of the year for the dairy cow is the latter part of summer and early fall. At this season the pastures are often short or dried up, and in such cases it is a common mistake of dairymen to let their cows drop off in flow of milk through lack of feed. Later they find it impossible to restore the milk flow, no matter how the cows are fed. Good dairy practice demands that the milk flow be maintained at a high level all the time from parturition to drying off. It becomes necessary, therefore, to supply some feed to take the place of the grass. The easiest way to do this is by means of silage. Silage is cheaper and decidedly more convenient to use than soiling crops.

The amounts to feed will depend upon the condition of the pastures, varying all the way from 10 pounds to a full winter feed of 40 pounds. It should be remembered in this connection that silage contains a low percentage of protein, so that the greater the amount of silage fed the greater must be the amount of protein in the supplementary feeds to properly balance the ration.

UNCLE SAM'S MAIL BOOK STORE.

Few people appreciate the variety and wide range of subjects treated in official United States publications which the Government is glad to supply in all cases at actual cost. While many of these publications record scientific studies, others are designed especially for lay readers, and supply information directly useful in the solution of many personal problems, in preparing addresses and in completing individual researches. The large number of these publications can be obtained for 5 or 10 cents, although some of the bound volumes and maps and charts run as high as $10.

In the list of publications are many bulletins issued by the Department of Agriculture and other departments, which can no longer be obtained free, because the department's supply for free distribution is exhausted. The superintendent of documents, however, is always ready and willing to supply these documents at actual cost.

The first step in obtaining them is to write to the superintendent of documents, Government Printing Office, Washington, D. C., asking him to supply a list or catalogue of all Government publications bearing on the subject in which the writer is interested. This

list or catalogue, frequently a pamphlet of anywhere from a dozen to nearly a hundred pages of titles, the superintendent will send without charge on receipt of a postal card request. These lists do not include all the subjects treated in public documents, but the superintendent will answer any special inquiries sent to him.

The following list of price lists or catalogues of publications which the superintendent of documents is glad to send free, will give an idea of the differing kinds of information as to which the Government is ready to supply publications. A postal card request will bring any of the catalogues named below, also full information as to how to purchase Government publications:

DOCUMENT PRICE LIST.

The only publications sent free by the superintendent of documents are his price lists. More than 60 of these have been compiled and published, but some have become obsolete. Those which are now in active stock are published under the following names and numbers:

10. Laws of United States. Describes all the different forms in which the laws have been officially published. Editions issued by private publishers are not sold.

11. Food and Diet. Lists all of those pamphlets relating to cookery which, collectively have been given the popular name Uncle Sam's Cook Book.

15. United States Geological Survey. The survey is a prolific publisher. Its principal series are bulletins, of which it has issued nearly 600; Water Supply Papers, nearly 400; Monographs, more than 50; Professional Papers, more than 80.

16. Farmers' Bulletins and Yearbooks. This is preeminently the farmers' list. It is more in demand than any other. The Farmers' Bulletins now number about 600, and the pamphlet reprints from the Yearbooks are even more numerous. There is also a new series, called Agriculture Department Bulletins, numbering now about a hundred. By frequently publishing new editions or supplements No. 16 is usually kept pretty closely up to date.

18. Engineering: Mechanics. The list has not many publications relating to the mechanical arts. Engineering is better represented, but the chief feature is the collection of technical documents from the Standards Bureau.

19. Army and Navy. American military and naval documents, of which there are more than many peaceful citizens are aware of.

20. Lands. Relates to the public lands of the United States, their conservation and irrigation, the national parks, homesteading, etc.

21. Fishes. The fishery industries as well as the fishes are considered, the publications of the Fish Commission and the Fisheries Bureau furnishing the greater number of titles.

24. Indians. The historical, ethnological, educational, and philological documents relating to the Indian tribes of North America are numerous and to many persons exceedingly interesting.

25. Transportation. The first editions of this list included the publications of the Interstate Commerce Commission. A separate list (No. 59) has now been given to the commission, but many documents relating to transportation are left.

28. Finance. The National Monetary Commission, the new financial legislation, the income tax, etc., supply plentiful material for a long list.

31. Education. There are few more active publishing offices than the Education Bureau. Its recent issues of bulletins have been more numerous than formerly, and also apparently more timely and interesting.

32. Noncontiguous territory. The first edition of this list included the documents relating to Alaska Territory and the Canal Zone, but a separate list has been made for each of these. No. 32 now relates only to the Philippines, Hawaii, Porto Rico, Guam, Samoa, and the occupations of Cuba by the United States.

33. Labor questions. Forty pages are filled with titles relating to the numerous plans in recent years to lighten the lot of the wage workers.

35. Geography and explorations. Includes publications of the Coast and Geodetic Survey and of the surveys and explorations in the West during the nineteenth century, besides general geographical titles.

36. Government periodicals. The superintendent of documents receives subscriptions for more than 50 periodicals—daily, weekly, and monthly. All are described and priced in this list.

37. Tariff. The old and new tariffs, with incidental documents.

38. Animal industry. Publications describing the domestic animals in health and disease, their proper care and feeding. Includes dairy and poultry.

40. Chemistry Bureau. As this is a branch of the Agriculture Department, its publications are classed as belonging to agricultural chemistry.

41. Insects. The titles in this list proceed from the Entomology Bureau.

42. Experiment Stations Office. These publications discuss many themes, including nutritition, irrigation, drainage, agricultural extension, etc.

43. Forest Service. The work of this extensive and important service is well covered by its several series of publications

44. Plant life. All economic plant growth, and its maladies and cures, planting, seeding, hybridization, etc.

45. Public Roads Office. To this office has been intrusted the study and development of one of the most important and practical reforms. Its publications report the results of extensive and successful experimentation.

46. Soils. The work of the Soils Bureau, Agriculture Department, is of great economic value. American soils have been surveyed, described, analyzed, and classified.

47. Crop statistics. The work of the Statistics Bureau, Agriculture Department, made accessible.

48. Weather Bureau. The weather has not yet been brought under control, but the study of its laws has been prosecuted with diligence.

50. American history. No connected narrative history of the Republic has been officially published, but many historical episodes have been described, and such descriptions are the material from which history is made.

51. Health and hygiene. A large list, giving numerous titles relating to public health, individual health, and sanitation.

53. Maps. Though several of the largest map-publishing bureaus prefer to sell their own maps, still many are listed here, including the United States and State maps published by the General Land Office.

54. Miscellaneous. Numerous subjects not taken up in other lists are bunched under this heading. Corporations, immigration, initiative, referendum, recall, strong drink, white-slave traffic, and woman suffrage are leading subjects.

55. National Museum publications. The publications of the Museum are all public documents and are on sale.

56. Smithsonian Institution reports. The annual report is the only publication of the Smithsonian Institution proper that is a public document. The general appendix to the report is a scientific miscellany that supplies an array of interesting titles.

57. Astronomical Papers of the Naval Observatory. Not a large list, but one which includes papers by Simon Newcomb and other astronomers of note.

58. Mines and Mining. Mainly made up of issues of the Mines Bureau, a new and active publishing office.

59. Interstate Commerce Commission publications. These have become so numerous that it has been necessary to make a separate list for them.

60. Alaska Territory. A separate list for the numerous publications relating to the newest of the Territories.

61. Panama Canal and the Canal Zone. This is another case of the printed records relating to a special subject outgrowing former bounds and requiring the compilation of a new list.

HOW TO REMIT WHEN ORDERING PUBLICATIONS FROM THE CATALOGUES.

After receiving the catalogue, those who wish to purchase publications from the superintendent of documents should follow the following rules:

Remittances should be made to the superintendent of documents, Washington, D. C., by postal money order, express order, or New York draft. If currency is sent, it will be at sender's risk. *His office is not a part of the Department of Agriculture.*

To facilitate the payment of the cost of documents, the superintendent of documents will hereafter accept coupons issued by him instead of cash. Coupons of the value of 5 cents each are sold in sets of 20 for $1. Address order to Superintendent of Documents, Government Printing Office.

Postage stamps, coins defaced or worn smooth, foreign money, or uncertified checks positively will not be accepted.

No charge is made for postage on documents forwarded to points in the United States, Guam, Hawaii, Philippine Islands, Porto Rico, or to Canada, Cuba, or Mexico. To other countries the regular rate of postage is charged, and remittances must cover such postage.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. 1 WASHINGTON, D. C., JUNE 3, 1914. No. 43

MAXIMUM AMOUNTS THE STATES CAN RECEIVE UNDER THE SMITH-LEVER COOPERATIVE AGRICULTURAL EXTENSION ACT.

The appended table shows the maximum amounts which the several States will be eligible to receive under H. R. 7951 (the Smith-Lever Act), which provides for cooperative agricultural extension work between the States and the United States Department of Agriculture.

As the table shows, the act makes available for the next nine fiscal years an aggregate sum of $23,120,000 of Federal funds to be expended in instruction and practical demonstrations in agriculture and home economics. To obtain this total the States must appropriate for like purposes a total of $18,800,000, making a grand total of $41,920,000 to be expended during the next nine fiscal years on direct agricultural extension work. Thereafter the Federal Government is to appropriate $4,580,000 annually, and the States, to take their full quota, must appropriate $4,100,000 annually, making a total annual expenditure for this purpose of $8,680,000.

The purposes to which the Federal funds are to be applied are defined by the act as follows:

That cooperative agricultural extension work shall consist of the giving of instruction and practical demonstrations in agriculture and home economics to persons not attending or resident in said colleges in the several communities, and imparting to such persons information on said subjects through field demonstrations, publications, and otherwise; and this work shall be carried on in such manner as may be mutually agreed upon by the Secretary of Agriculture and the State agricultural college or colleges receiving the benefits of this act.

None of this money may be applied to the purchase, erection, and repair of any building, or the purchase and rental of land, or any college course teaching or lectures in colleges, promoting agricultural trains, etc. Not more than 5 per cent of each annual appropriation may be used in printing or the distribution of publications; so that at least 95 per cent must be expended in direct extension activities.

Table showing maximum amounts of Federal funds which the States would be eligible to receive under H. R. 7951, which provides for cooperative agricultural extension work.

[Each State must duplicate all Federal money above $10,000 a year.]

(*EXPLANATION OF APPROPRIATIONS.*)—The act first appropriates $480,000 annually, beginning with 1914-15, and gives each State $10,000 for each fiscal year as a basic fund.

The act then appropriates additional Federal moneys to be distributed in the proportion of rural population. To share in these additional funds the State must duplicate the additional Federal money thus received. The additional appropriations are as follows: 1915-16, $600,000; 1916-17, $1,100,000; 1917-18, $1,600,000; 1918-19, $2,100,000; 1919-20, $2,600,000; 1920-21, $3,100,000; 1921-22, $3,600,000; 1922-23 and thereafter, $4,100,000.

It will be noticed that after 1915-16 the total appropriation is increased each year by $500,000. The fifth column in the table shows the amount of each additional $500,000 that the State is entitled to receive. To get the amount that any State is entitled to receive for any fiscal year from 1917 to 1922, add the amount given in the table to the total for the immediately preceding year. *Example:* Alabama, in 1917-18 will receive $49,404 plus $17,911=$67,315; for 1918-19 Alabama will receive $67,315 plus $17,911=$85,226; and so on until the maximum given under the column 1922-23 is reached.

The totals for each State contain the basic $10,000 granted each year. To obtain the amount that the State would have to duplicate in any year to receive its entire Federal quota, subtract $10,000 from the total. *Example:* The amount Alabama would have to duplicate in 1917-18 is $67,315 minus $10,000, or $57,315.

State.	Fiscal year 1914-15.		1915-16	1916-17	1917-18, 1918-19, 1919-20,[1] 1920-21, 1921-22	1922-23, and thereafter.
	Per cent that rural population of State bears to total rural population.[1]	Amount each State will receive.	Maximum amount each State is entitled to receive.	Maximum amount each State is entitled to receive.	For the above fiscal years, add each year the amount given below to the total for the immediately preceding year.	For fiscal year 1922-23 and thereafter.
Alabama	3.58	$10,000	$31,493	$49,404	$17,911	$156,870
Arizona	.29	10,000	11,717	13,147	1,431	21,730
Arkansas	2.78	10,000	26,680	40,580	13,900	123,980
California	1.84	10,000	21,039	30,235	9,198	85,424
Colorado	.80	10,000	14,795	18,789	3,995	42,759
Connecticut	.232	10,000	11,398	12,563	1,165	19,554
Delaware	.213	10,000	11,281	12,347	1,067	18,749
Florida	1.08	10,000	16,491	21,898	5,408	54,345
Georgia	4.19	10,000	35,174	56,151	20,978	182,020
Idaho	.52	10,000	13,110	15,702	2,592	31,254
Illinois	4.38	10,000	36,282	58,184	21,902	189,596
Indiana	3.16	10,000	28,943	44,729	15,786	139,442
Iowa	3.13	10,000	28,794	44,456	15,662	138,428
Kansas	2.43	10,000	24,556	36,686	12,130	109,466
Kentucky	3.51	10,000	31,088	48,660	17,573	154,103
Louisiana	2.25	10,000	24,094	35,839	11,745	106,309
Maine	.731	10,000	14,389	18,047	3,657	39,991
Maryland	1.29	10,000	17,748	24,203	6,456	62,936
Massachusetts	.49	10,000	12,922	15,374	2,443	30,029
Michigan	3.00	10,000	28,002	43,005	15,002	133,016
Minnesota	2.48	10,000	24,899	37,315	12,416	111,811
Mississippi	3.22	10,000	29,330	45,438	16,108	142,086
Missouri	3.84	10,000	33,036	52,232	19,196	167,411
Montana	.491	10,000	12,952	15,412	2,460	30,172
Nebraska	1.79	10,000	20,728	29,668	8,940	83,308
Nevada	.14	10,000	10,834	11,529	695	15,699
New Hampshire	.36	10,000	12,133	13,909	1,777	24,572
New Jersey	1.28	10,000	17,660	24,043	6,383	62,341
New Mexico	.57	10,000	13,414	16,259	2,845	33,329
New York	3.90	10,000	33,443	52,979	19,536	170,195
North Carolina	3.82	10,000	32,953	52,081	19,127	166,846
North Dakota	1.04	10,000	16,236	21,431	5,196	52,607
Ohio	4.26	10,000	35,557	56,855	21,297	184,640
Oklahoma	2.71	10,000	26,256	39,802	13,547	121,081
Oregon	.741	10,000	14,442	18,144	3,701	40,352
Pennsylvania	6.15	10,000	46,893	77,637	30,744	262,101
Rhode Island	.04	10,000	10,220	10,402	183	11,497
South Carolina	2.61	10,000	25,691	38,768	13,076	117,223
South Dakota	1.03	10,000	16,167	21,308	5,140	52,148
Tennessee	3.53	10,000	31,202	48,870	17,668	154,878
Texas	5.99	10,000	45,970	75,945	29,975	255,795
Utah	.41	10,000	12,438	14,468	2,031	26,655
Vermont	.38	10,000	12,275	14,170	1,896	25,543
Virginia	3.21	10,000	29,267	45,323	16,056	141,659
Washington	1.09	10,000	16,523	21,958	5,436	54,571
West Virginia	2.01	10,000	22,071	32,130	10,059	92,484
Wisconsin	2.69	10,000	26,164	39,634	13,470	120,454
Wyoming	.21	10,000	11,250	12,290	1,041	18,541
	99.988	480,000	1,080,000	1,580,000	500,000	4,580,000

[1] Figures after 1920 subject to returns of fourteenth census on rural population.

ROSES TO ADORN HOME GROUNDS.

Roses, when used for decorative purposes on the home grounds, serve to set off a fine lawn and improve the appearance of a place, not only during their

blooming time but throughout the year. Most of the varieties that are used as shrubs have a foliage of lighter appearance than the majority of other bushes used for similar adornment, and they are therefore placed preferably in front of the other plants. This will result in a pleasing contrast between the shades of green. They also contrast attractively with a greensward if placed close by the edge of the lawn. Roses used in this manner should be planted in comparatively large masses.

Roses which are grown mainly for bush or mass effect should be sparingly pruned, according to the department's landscape gardener. They should be permitted to run wild instead of being pruned into any form, and only deadwood or very old wood should be removed when they are pruned. Of the various species of roses used to beautify lawns the most prominent are *Rosa rugosa* ("rugosa" referring to the rough foliage of the rose) and the common wild roses of the roadsides and thickets in the different sections of the United States.

Most of the roses used for mass effects have only single, or almost single, blooms. The bloom, however, is a comparatively insignificant feature of the decorative value of these roses. An even more attractive feature is the "hip" of the rose. The "hip" is the bright-red tip of the stem, which enlarges to hold the seeds of the plant and remains a brilliant color during the winter, thus adding much to the attractiveness of the bush at a time when most shrubbery is leafless and bare.

TO SECURE MAXIMUM BLOOM OF "CUT-FLOWER" ROSES.

From a cultural standpoint roses are divided into three main classes: Those grown for bush or mass effect, those grown for cut flowers, and those that climb trellises and porches. Those that are grown mainly for the individual blooms which are to be taken from them must be treated in a very different manner from the roses used for bush effect as described above. A still different treatment must be given to the climbing roses.

Roses that are grown for the cut flowers should be in a secluded location, as their main purpose is to supply blossoms for decorative purposes within the home, and it is therefore desirable to produce as many fine individual flowers as possible without considering the appearance of the plant as a bush. To secure this maximum bloom the department's landscape gardener advises that the plants be pruned thoroughly. When a rose is ready for cutting the whole stem on which it has grown should be cut with it. This means that it should be cut down to within 6 inches of the ground if the spring pruning was properly done, and nothing should be left of this year's growth except two good "eyes" at the base of the stalk. The "eyes" (buds) are the points from which new shoots will start and may be seen at the base of the leaf stalks.

This treatment will seem extreme to many who are used to growing roses, for it will mean the cutting away of a large portion of the bush. In fact, when a crop of roses has been cut, the bush may not be much higher than it was in the early spring after the proper spring pruning has been done, i. e., not more than 6 inches high. New shoots, however, will push forth immediately and the vigor of the whole plant will pass into them, and in the case of a number of varieties of roses, another crop of flowers a few weeks later will be the result.

Everything in the treatment of a "cut-flower" bush must be sacrificed to the production of a fine individual blossom. When two or three rosebuds form on a single shoot all but one should be pinched off as soon as they are observed. The moment the individual rose is cut the whole stem should be cut away as described, even though other buds are on the point of starting farther down on the stem.

TEA ROSES IN DECEMBER.

In Washington, D. C., tea and hybrid tea roses have been kept blooming continually from June into December by continual cuttings of this extreme character. Eight bushes of these roses served to keep flowers in one home continually for more than half the year. These varieties of roses if not cut down will not be likely to bear many more blossoms after the June crop. If they are cut down as described, there will be a wealth of roses in June, then a brief period with no flowers, then a few blossoms at a time all the rest of the year.

The varieties of roses known as hybrid perpetuals, which are popular roses for cut flowers, do not respond so freely. However, the extreme cutting treatment is the only way by which it is possible to get a second crop of blooms from these roses, although even that is not always successful.

An explanation of treatment for climbing roses is more appropriate for a later date when the June crop is over, and a description of the proper treatment will be given at that time.

58,816 MANUFACTURERS TO BE NOTIFIED THAT GUARANTIES AND SERIAL NUMBERS ARE AT AN END MAY 1, 1915.

The department is sending individual official notices to over 58,000 manufacturers that on May 1, 1915, their guaranties filed under the food and drugs regulations will be stricken from the files and that thereafter the serial numbers assigned to such guaranties must not be used on the label or package of any food or drug. This action is in accordance with the regulations adopted on May 5, 1914, by the Secretaries of the Treasury, Agriculture, and Commerce, which

abolish the use of the guaranty legend and serial number on foods and drugs. The ground for this action was that the legend "Guaranteed by (name of guarantor) under the food and drugs act, June 30, 1906" was understood by many consumers to mean that the Federal Government had passed upon and certified the excellence of the article so labeled, whereas the legend and serial number were merely a guaranty on the part of the manufacturer to his dealer that the manufacturer would assume full legal responsibility for his goods.

In the meantime from the records it appears that 58,816 manufacturers have filed guaranties and obtained serial numbers, the last number issued being 58,816.

The notice advises manufacturers that after May 1, 1915, guaranties should not appear on the label or package but should be incorporated in or attached to the bill of sale, invoice, bill of lading, or other schedule giving the names and quantities of the articles. The guaranty may be printed or stamped on the invoice, and if it is signed in accordance with the new regulations and refers specifically to the goods listed in the invoice or document it covers, it need not contain a detailed description or schedule of the articles.

Manufacturers who are asking permission to file guaranties and obtain serial numbers are being advised that they should attach their guaranty to their invoices and not seek to use the legend or serial number on their labels, as the guaranty and serial number will be withdrawn within a year.

PRICES PAID TO FARMERS FOR BUTTER, EGGS, AND CHICKENS ON MAY 1.

The crop reports of the Bureau of Statistics (Crop Estimates) of the department show the average prices paid to the farmers in various States for butter, eggs, and chickens on May 1, 1914, and as compared with the similar estimates on May 1, 1913. Apparently farmers are obtaining on an average less for their butter and slightly more for their eggs and chickens.

BUTTER.

The average price paid to the farmer for butter on May 1, 1914, was 23.8 cents, or 3.2 cents less a pound than the average price paid on May 1, 1913. In the New England States farmers of New Hampshire seem to have received on an average 33 cents, or 1 cent more a pound, while in Connecticut they were paid 30 cents, or 8 cents less a pound; in Vermont 29 cents and Rhode Island 32 cents, or 6 cents less a pound; in Massachusetts 33 cents, or 3 cents less a pound; and in Maine 30 cents, or 1 cent less. In New York and Pennsylvania and adjoining States the average price was 28 to 32 cents, or from 7 cents to 4 cents less. On the coast from Maryland to South Carolina the prices were either the same or 1 cent higher, ranging from 25 to 28 cents. Georgia farmers, receiving 26 cents, seem to have gained 1 cent, while the Florida farmers received 2 cents a pound less, or 33 cents. In the balance of the States, with a few exceptions where the price was stable, farmers apparently were receiving from 1 cent to 5 cents less a pound, except that in Montana the price was 1 cent more, in Arizona 6 cents less, and in Oregon 7 cents less.

EGGS.

The farm prices for eggs on May 1 were 16.8 cents a dozen, or about 0.7 cent higher on an average for the country than on May 1, 1913, or an increase of about 4.3 per cent. In most of the States the price was the same, or varied only by 1 cent one way or the other. In Montana, however, eggs on May 1, 1914, were 18 cents, or 4 cents cheaper than the preceding year, while in New Mexico they were 23 cents, or 4 cents higher on an average.

CHICKENS.

The price paid to farmers for chickens on May 1 was 12.5 cents, or about 0.7 cent a pound higher in 1914 than in 1913, or an increase of about 5.9 per cent. The variation in the price of chickens was commonly less than 1 cent per pound. The principal variations from this were Delaware, where there was a decrease of 1½ cents a pound to 14.5 cents; West Virginia, where there was an increase of 1.2 cents a pound to 13.4 cents; North Carolina, an increase of 1.5 cents to 12.5 cents; and South Carolina, an increase of 2.3 cents to 15 cents.

THE COST OF PASTEURIZING MILK.

With a properly designed and properly operated plant the average cost of pasteurizing milk is $0.00313 a gallon, and of cream $0.00634 a gallon, according to tests recently conducted by the department. These tests also show that the "flash" process, by which milk is raised to a temperature of 165° F. and kept there for a moment only, is more expensive than the "holder" process, in which milk is maintained for 30 minutes at a temperature of 135° to 145°. The "holder" process requires 17 per cent less heat than the other and, in addition, there is a saving on the expense of cooling. For hygienic reasons, also, the department recommends the "holder" process.

Many milk plants and creameries, it was found, do not attempt to make any use of the latent heat in the exhaust steam from their engines and steam-driven auxiliaries. This heat would be sufficient in many cases for all the pasteurizing done in the plants if it were properly utilized instead of being permitted to go to waste. When exhaust steam is used, it is calculated that for every 400 pounds of milk pasteurized per hour with it, one horsepower is taken from the boiler load, with a consequent saving in fuel cost.

Another common source of waste was found to be the faulty arrangement of apparatus and leaky piping. The loss from these causes may run as high as 30 per cent of all the heat required, a loss that can be reduced to negligible proportions by proper arrangement. The use of the regenerator, in particular, by which a large portion of the heat in the pasteurized milk is transferred to the raw product, is also an important factor in securing maximum economy.

In considering the cost of pasteurizing, the investigators estimated the life of the necessary apparatus at four years, and the annual depreciation, in consequence, was figured at 25 per cent. This is due to the fact that the whole dairy apparatus must be taken apart after each operation in order to give it a thorough cleaning. This necessarily results in rough usage. The mechanical equipment, such as the engine, boiler, shafting, etc., has, on the other hand, been considered as depreciating at the rate of only 10 per cent per annum.

In these tests, the results of which are contained in Bulletin 85, the investigators have confined themselves entirely to the engineering features of pasteurizing, their object being to ascertain as closely as possible the necessary cost of the process. The hygienic and sanitary aspects of the question are covered in other publications of the department.

COOPERATION IN THE FARM BUREAU.

Unless farmers are sufficiently interested in farm bureau work to form an effective organization which truly represents the farming interests of the county, there is small chance of the county bureau meeting with great success. It is not enough for professional and business men to interest themselves in the work; the farmers must feel that the bureau is theirs, that it is a means by which they can all cooperate in securing for the community at large every possible benefit, and not an institution for conferring benefits on them individually. A county organization imbued with this spirit is a necessary preliminary to successful work by a county agent.

SULPHUR ADVISED FOR POWDERY SCAB.

On account of the possibility of infection with powdery scab, the department is now recommending all potato growers to treat their seed potatoes with sulphur. This is made expedient by the fact that infected seed potatoes have been shipped out of Maine, where powdery scab now exists. Recent tests justify the department's scientists in recommending a thorough dusting with flowers of sulphur after the potatoes have been cut as a precaution against the disease, but the treatment is by no means intended to take the place of formaldehyde as a general disinfectant. The department advises the use of both formaldehyde and sulphur.

Before cutting the potatoes should be soaked for two hours in a solution of 1 pint of formaldehyde to 30 gallons of water. They should then be allowed to dry quickly either in the open or while spread out on a clean floor. This is known to be effective against common scab and black leg, and should therefore be employed in all cases. Whether it is equally effective against powdery scab is doubtful, and for this reason the use of sulphur is strongly advised in addition. The potatoes should be cut first and then dusted thoroughly with flowers of sulphur. A general use of this treatment is advised for Maine.

WARNING AGAINST ALLEGED HOG CHOLERA CURES.

GOVERNMENT HAS NOT APPROVED OF ANY TREATMENT EXCEPT THE PROTECTIVE SERUM.

Evidence of what appears to be a well organized campaign to delude farmers throughout the country into buying an alleged cure for hog cholera, under the impression that this has been investigated and approved by the United States Government, has reached the Department of Agriculture. Articles praising this medicine, Benetol by name, are being sent out broadcast to newspapers. These articles are so worded that it appears as if the Department of Agriculture had received reports from the State of Minnesota showing that the medicine had proved most beneficial. As a matter of fact the one report received by the department was an unofficial and unsolicited statement sent presumably from the promoters themselves. The department attaches no importance whatsoever to this statement. It has no reason to believe in the efficiency of any proprietary cure for hog cholera and does not recommend any. Under certain conditions it urges farmers to protect their stock with antihog-cholera serum, but that is all.

In connection with this attempt it may be said that the medicine, which is now put forward as good for hogs, was advertised some time ago as a means of killing tuberculosis, typhoid, and cancer germs, according to an article published in the Journal of the American Medical Association. At that time it was asserted that the Army was interested in it. As a matter of fact the Army was no more interested then than the Department of Agriculture is now.

In view of the evidence that the attempt to create this false impression is persistent and widespread, all hog owners are warned to communicate with the United States authorities before accepting as true any statement that the Government recommends any treatment other than the serum already mentioned.

To those receiving the News Letter:

In case of any change of address, kindly notify the Office of Information, Department of Agriculture, Washington, D. C., giving both the old and new address.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. 1 WASHINGTON, D. C., JUNE 10, 1914. No. 44

THE ADULTERATION AND MISBRANDING OF THE SEEDS OF KENTUCKY BLUEGRASS AND REDTOP.

During the calendar year 1913 seeds of Kentucky bluegrass and redtop were secured in the open market in accordance with the following paragraph in the act of Congress making appropriations for the Department of Agriculture:

> Where such samples [seeds of grasses, clover, or alfalfa secured in the open market] are found to be adulterated or misbranded, the results of the tests shall be published, together with the names of the persons by whom the seeds were offered for sale.

In carrying out the provisions of this act, 1,021 samples of the seeds mentioned above were secured and analyses made under the direction of Mr. E. Brown, Botanist in Charge of the Seed Laboratory, Bureau of Plant Industry, and publication is here made of the analyses of the 127 samples found to be adulterated or misbranded, together with the names of the seedsmen by whom they were sold or offered for sale.

KENTUCKY BLUEGRASS.

Of the 438 samples of Kentucky bluegrass seed obtained, 15, or less than 4 per cent, were found to be either adulterated or misbranded. Of these, 9 samples contained less than 2 per cent of Kentucky bluegrass. One sample was a mixture of redtop, timothy, Canada bluegrass, and Kentucky bluegrass.

TABLE I.—*Results of tests of samples of seed obtained in the open market as Kentucky bluegrass seed and found to be adulterated or misbranded.*

Seed offered for sale or sold as Kentucky bluegress seed by—		Seed obtained by—	Seeds and inert matter found upon analysis of samples.			
Name of dealer.	Address.		Kentucky bluegrass seed.	Canada. bluegrass seed.	Other seeds.	Dirt and chaff.
			P. ct.	*P. ct.*	*P. ct.*	*P. ct.*
Davis Co., Zack	Delaware, Ohio.	Mail (sample)	.....	66.45	3.12	30.43
Do	do	Purchase (bulk).	0.07	71.98	1.04	26.91
Eaton Chase Co	129 Main Street, Norwich, Conn.	Mail (sample)	67.96	7.97	1.08	22.99
Do	do	Purchase (bulk).	47.84	26.33	1.36	24.47
Harnden Seed Co	505 Walnut Street, Kansas City, Mo.	do	25.28	30.53	[1] 21.62	22.57
Harvey Seed Co	65 Ellicott Street, Buffalo, N. Y.	do	1.69	82.94	6.61	8.76
La Rose Grain Co	La Rose, Ill.	do	44.21	26.52	3.24	26.03
Neely & Ferrall	900 East Eighth Street, Canton, Ohio.	do	1.42	77.48	[2] 6.31	14.79
Scheifele, G. S	Oneida, N. Y.	do	1.18	61.12	[3] 7.26	30.44
Shaeffer, W. E	Lockport, N. Y.	Mail (sample)	.09	86.66	.56	12.69
Do	do	Purchase (bulk).	.16	77.71	1.92	20.21
Steckler Seed Co., J.	512 Gravier Street, New Orleans, La.	Mail (sample)	46.22	36.44	3.11	14.23
Do	do	Purchase (bulk).	61.29	24.91	1.30	12.50
Yuess Gardens Co	Newburgh, N.Y.	Mail (sample)	1.02	83.65	6.15	9.18
Do	do	Purchase (bulk).	1.00	81.72	6.42	10.86

[1] Redtop or bent-grass, 16.29 per cent; timothy, 3.90 per cent.
[2] Timothy, 5.03 per cent.
[3] Timothy, 5.75 per cent.

REDTOP.

Of the 583 samples obtained as redtop seed, 112 were found to be adulterated or misbranded. Of these, 110 samples contained timothy; 1, Kentucky bluegrass and wood meadow grass; 1, Canada bluegrass; and 1, Kentucky bluegrass, Canada bluegrass, and meadow fescue.

TABLE II.—*Results of tests of samples of seed obtained in the open market as redtop seed and found to be adulterated or misbranded.*

Seed offered for sale or sold as redtop seed by—		Seed obtained by—	Seeds and inert matter found upon analysis of samples.			
Name of dealer.	Address.		Redtop seed.	Timothy seed.	Other seeds.	Dirt and chaff.
			Pr. ct.	*Pr. ct.*	*Pr. ct.*	*Pr. ct.*
Alneer Bros	116 Kishwaukee Street, Rockford, Ill.	Mail (sample)	79.81	6.09	1.06	13.04
Do	do	Purchase (bulk).	78.98	5.74	1.11	14.17
Andrews, jr., Jim	13 East Side Public Square, Columbia, Tenn.	Mail (sample)	81.85	6.96	1.22	9.97
Do	do	Purchase (bulk).	82.47	6.84	.94	9.75
Bailey & Sons Co	61 East Second South Street, Salt Lake City, Utah.	Mail (sample)	78.58	7.82	.96	12.84
Do	do	Purchase (bulk).	75.63	9.63	1.16	13.58
Beaumont Seed Co.	259 Crockett Street, Beaumont, Tex.	do	76.55	12.73	1.15	9.57
Binghamton Seed Co.	135 Court Street, Binghamton, N. Y.	Mail (sample)	75.51	6.87	3.97	13.65
Do	do	Purchase (bulk).	82.63	5.10	1.28	10.99
Breck & Sons, Joseph.	51 North Market Street, Boston, Mass.	Mail (sample)	84.63	5.09	.39	9.89
Do	do	Purchase (bulk).	74.76	9.67	1.45	14.12
Brown, Arthur S	Manchester, N. H	do	78.96	11.82	.38	8.84
Buckbee, H. W	Rockford, Ill.	Mail (sample)	55.20	6.10	2.20	36.50
Do	do	Purchase (bulk).	57.32	5.04	2.28	35.36
Burnett Bros	72 Cortlandt Street, New York, N. Y.	Mail (sample)	32.39	6.15	1.95	59.51
Do	do	Purchase (bulk).	38.89	9.02	2.23	49.86
Burt & Co., N. J	110 North Main Street, Burlington, Iowa.	Mail (sample)	75.19	14.79	.97	9.05
Do	do	Purchase (bulk).	78.24	12.72	.44	8.60
Busch Seed Co., W. J.	608 Massachusetts Street, Lawrence, Kans.	Mail (sample)	81.71	5.80	1.38	11.11
Do	do	Purchase (bulk).	78.33	8.37	1.21	12.09
Carpenter Seed Co	Provo, Utah	Mail (sample)	65.92	16.65	1.36	16.07
Do	do	Purchase (bulk).	65.36	18.13	2.05	14.46
Champaign Seed Co.	Champaign, Ill.	Mail (sample)	42.00	12.21	3.15	42.64
Do	do	Purchase (bulk).	35.73	9.08	3.36	51.83
Douglas & Co., Saml.	444 Chestnut St., Nashville, Tenn.	do	81.46	7.95	.94	9.65
Ebbert Seed Co., The.	412 South Main Street, Rocky Ford, Colo.	Mail (sample)	72.09	8.80	2.93	16.18
Do	do	Purchase (bulk).	71.63	8.06	3.04	17.27
Frost, David C	758 West Short Street, Lexington, Ky	Mail (sample)	77.52	8.76	2.10	11.62
Do	do	Purchase (bulk).	63.07	20.32	1.25	15.36
Funk Bros. Seed Co.	Bloomington, Ill.	Mail (sample)	80.81	11.42	.38	7.49
Do	do	Purchase (bulk).	81.49	11.65	.38	6.48
German Nurseries & Seed House.	Beatrice, Nebr.	Mail (sample)	79.54	6.88	1.06	12.52
Do	do	Purchase (bulk).	78.07	8.44	1.12	12.37
Grout, Chas. F	352 Twenty-fourth Street, Ogden Utah.	Mail (sample)	75.39	7.02	1.15	16.44
Do	do	Purchase (bulk).	76.12	7.29	1.82	14.77

TABLE II.—*Results of tests of samples of seed obtained in the open market as redtop seed and found to be adulterated or misbranded*—Continued.

Seed offered for sale or sold as redtop seed by—		Seed obtained by—	Seeds and inert matter found upon analysis of samples.			
Name of dealer.	Address.		Redtop seed.	Timothy seed.	Other seeds.	Dirt and chaff.
			Pr. ct.	*Pr. ct.*	*Pr. ct.*	*Pr. ct.*
Haines Seed Co.	1359 Fifteenth Street, Denver, Colo.	Purchase (bulk).	68.43	16.60	2.52	12.45
Hardie Seed Co., David.	1005 Elm Street, Dallas, Tex.	Mail (sample)	68.85	10.35	2.93	17.87
Do	do	Purchase (bulk).	67.18	8.16	3.07	21.59
Harvey Seed Co.	65 Ellicott Street Buffalo, N. Y.	Mail (sample)	46.56	15.88	3.29	34.27
Do	do	Purchase (bulk).	41.04	16.04	3.11	39.81
Hayes Produce Co.	524 North Kansas Ave., Topeka, Kans.	Mail (sample)	80.86	6.69	.93	11.52
Do	do	Purchase (bulk).	81.91	6.22	1.17	10.70
Helmer Milling Co.	14 Fourth Street, Fond du Lac, Wis.	Mail (sample)	68.32	14.02	3.27	14.39
Do	do	Purchase (bulk).	64.23	18.40	5.07	12.30
Henderson Co., C. W.	Knoxville, Tenn.	Mail (sample)	70.84	8.60	1.34	19.22
Do	do	Purchase (bulk).	72.87	7.84	1.24	18.05
Hitchcock & Son, L. H.	126 Second Avenue, North Nashville, Tenn.	Mail (sample)	79.60	8.78	1.04	10.58
Do	do	Purchase (bulk).	84.41	6.08	.39	9.12
Kay Elevator Co., W. O.	Salt Lake City, Utah.	Mail (sample)	76.82	8.70	1.14	13.34
Do	do	Purchase (bulk).	75.92	7.06	1.50	15.52
Keyser, Paul	204 Clay Street, San Francisco, Cal.	Mail (sample)	27.58	26.64	1.99	43.79
Do	do	Purchase (bulk).	40.52	.....	[1] 41.46	18.02
McCullough's Sons Co., J. M.	316 Walnut Street, Cincinnati, Ohio.	Mail (sample)	78.30	10.90	.96	9.84
Do	do	do	71.91	10.81	1.16	16.12
Do	do	Purchase (bulk).	80.23	9.89	.95	8.93
MacMillen & Co.	Greenwich, Conn	do	.17	2.82	[2] 71.37	25.64
Marlow Seed Co.	119 West Douglas Avenue, Wichita, Kans	Mail (sample)	76.02	6.64	1.13	16.21
Do	do	Purchase (bulk).	71.40	11.71	1.15	15.74
Missouri Seed Co.	1426 St. Louis Avenue, Kansas City, Mo.	Mail (sample)	65.28	16.78	1.26	16.68
Do	do	Purchase (bulk).	66.42	17.32	1.91	14.35
Nathan Grain Co.	Fort Wayne, Ind	Mail (sample)	64.55	19.60	1.92	13.93
Do	do	Purchase (bulk).	60.87	20.39	2.03	16.71
National Seed Co.	101 West Main Street, Louisville, Ky.	Mail (sample)	71.27	14.90	1.17	12.66
Do	do	Purchase (bulk).	63.01	23.31	1.07	12.61
Nebraska Seed Co.	1208 Jones Street, Omaha, Nebr.	Mail (sample)	80.23	6.33	.58	12.86
Do	do	do	54.13	7.12	1.92	36.83
Do	do	Purchase (bulk).	70.03	11.72	2.21	16.04
Oxley Seed Co.	Gibson City, Ill.	Mail (sample)	79.24	5.78	.48	14.50
Do	do	Purchase (bulk).	76.28	6.10	.68	16.94
Pioneer Seed Co.	1445 Larimer Street, Denver, Colo.	Mail (sample)	83.71	9.21	.39	6.69
Do	do	Purchase (bulk).	83.57	7.47	.46	8.50
Pittsburg Elevator Co.	Pittsburg, Kans.	Mail (sample)	69.50	17.57	2.22	10.71
Do	do	Purchase (bulk).	68.80	19.15	1.80	10.25
Ratekin's Seed House.	Shenandoah, Iowa.	do	78.84	8.23	1.17	11.76
Reyburn, T. T.	Leavenworth, Kans.	Mail (sample)	64.69	17.61	1.22	16.48
Do	do	Purchase (bulk).	63.34	19.79	2.13	14.74
Riese, Henry A.	Bloomington, Ill.	Mail (sample)	77.58	14.58	.27	7.57
Do	do	Purchase (bulk).	79.59	12.36	.28	7.77
Robinson Supply Co.	21 West Nelson Street Lexington, Va.	Mail (sample)	69.91	21.20	.20	8.69
Do	do	Purchase (bulk).	70.19	20.48	.39	8.94
Rudy-Patrick Seed Co.	1306 West Eighth Street, Kansas City, Mo.	Mail (sample)	74.50	11.70	1.15	12.65
Do	do	Purchase (bulk).	79.62	9.67	1.14	9.57
Schwill & Co. Otto.	12 South Front Street, Memphis, Tenn.	do	80.37	9.95	.35	9.33
Simpson Seed & Floral Co.	1251 Champa Street, Denver, Colo.	Mail (sample)	77.62	8.11	1.37	12.90
Do	do	Purchase (bulk).	78.28	7.87	1.21	12.64
Slate Seed Co.	South Boston, Va.	Mail (sample)	70.08	12.01	1.08	16.83
Do	do	Purchase (bulk).	68.99	12.35	1.13	17.53
State Nursery Co.	Helena, Mont.	Mail (sample)	80.12	11.79	1.17	6.92
Do	do	Purchase (bulk).	80.34	11.37	1.21	7.08

[1] Kentucky bluegrass, 19.61 per cent; wood meadow grass, 18.77 per cent.
[2] Canada bluegrass, 61.34 per cent.

TABLE II.—*Results of tests of samples of seed obtained in the open market as redtop seed and found to be adulterated or misbranded*—Continued.

Seed offered for sale or sold as redtop seed by—		Seed obtained by—	Seeds and inert matter found upon analysis of samples.			
Name of dealer.	Address.		Redtop seed.	Timothy seed.	Other seeds.	Dirt and chaff.
			Pr. ct.	*Pr. ct.*	*Pr. ct.*	*Pr. ct.*
Steckler Seed Co., J.	512 Gravier Street, New Orleans, La.	Mail (sample)	24.34	25.51	5.24	44.91
Do	do	Purchase (bulk).	44.29	13.71	3.24	38.76
Taylor Bros.	Market and Front Streets, Camden, N. J.	Mail (sample)	29.39	.....	[1] 33.66	36.95
Do	do	do	76.61	11.05	2.95	9.39
Do	do	Purchase (bulk).	80.25	7.16	2.95	9.64
Tucker-Mosby Seed Co.	44 South Front Street, Memphis, Tenn.	Mail (sample)	77.00	9.16	.98	12.86
Do	do	Purchase (bulk).	73.29	11.43	1.13	14.15
Union Seed Co.	Bristol, Tenn.	Mail (sample)	80.87	9.81	.19	9.13
Do	do	Purchase (bulk).	81.52	9.57	.19	8.72
Valley Seed Co.	707 J Street, Sacramento, Cal.	Mail (sample)	37.76	7.03	2.03	53.18
Do	do	Purchase (bulk).	44.14	7.59	2.25	46.02
Vogeler Seed Co.	60 West First South Street, Salt Lake City, Utah.	Mail (sample)	71.76	6.87	2.90	18.47
Do	do	do	77.80	10.53	2.18	9.49
Do	do	Purchase (bulk).	69.92	13.47	3.05	13.56
Whitney-Noyes Co.	Church Street and Terrace, Buffalo, N. Y.	Mail (sample)	76.16	6.17	4.09	13.58
Do	do	do	78.51	5.75	3.20	12.54
Do	do	Purchase (bulk).	72.03	6.28	4.91	16.78
Wichita-Central Seed Co.	243 North Main Street, Wichita, Kans.	Mail (sample)	79.25	8.78	1.16	10.81
Do	do	Purchase (bulk).	78.53	7.91	1.04	12.52
Wood-Curtis Co.	Sacramento, Cal.	Mail (sample)	54.18	17.28	2.53	26.01
Do	do	Purchase (bulk).	51.64	15.77	2.40	30.19
Word's Seed Store.	219 Pine Street, Texarkana, Ark.-Tex.	Mail (sample)	79.27	9.64	1.26	9.83
Do	do	Purchase (bulk).	80.15	8.09	.97	10.79

[1] Kentucky bluegrass, 12.90 per cent; Canada bluegrass, 6.01 per cent; meadow fescue 13.77 per cent.

The Department of Agriculture will continue to examine and report promptly as to the presence of adulterants and dodder in any sample of seed submitted for that purpose. According to the location of the sender, these samples may be submitted to the Seed Laboratory at Washington, D. C., or to any of the following laboratories maintained through the cooperation of this department: Branch Seed-Testing Laboratory, Agricultural Experiment Station, Columbia, Mo.; Branch Seed-Testing Laboratory, Agricultural Experiment Station, Baton Rouge, La.; Branch Seed-Testing Laboratory, Oregon Agricultural College, Corvallis, Oreg.; Branch Seed-Testing Laboratory, Purdue University, La Fayette, Ind.; Branch Seed-Testing Laboratory, California Agricultural Experiment Station, Berkeley, Cal.

WM. A. TAYLOR,
Chief, Bureau Plant Industry.

Approved:
B. F. HOUSTON,
Secretary Agriculture,
Washington, D. C., April 20, 1914.

DOGS AND OUR MUTTON SUPPLY.

In spite of increasing popularity of mutton and lamb and the high market prices for sheep there has

been no increase in the number or size of flocks in the farming States.

We have only to glance at British agriculture to appreciate the fact that as land advances in value and better business methods are adopted the place of the sheep upon farms becomes an increasingly important one.

The superfluous dog in villages and on nonsheep-raising farms constitutes a very serious obstacle to the logical development of farm sheep husbandry in the United States. The Bureau of Statistics has recently received from its county crop correspondents a very interesting and suggestive set of replies to questions prepared by the Bureau of Animal Industry.

One of the questions asked for an estimate of the extent to which the present numbers of sheep might be increased without displacing any other farm stock. A great many of the correspondents gave 1,000 per cent in answer to this question. Answers to this and similar questions were summarized for 36 States. In 27 States the correspondents state that there might be an increase of over 100 per cent in the number of sheep kept without displacing other stock.

When asked to name the things that prevent more general keeping of sheep 30 States give as a large majority of their answers "dogs." Six States answer "fences," indicating a lack of working capital as a hindrance to sheep raising. The total replies from the 30 States referred to are distributed as follows: Dogs, 526; fences, 191; price of wool, 122; miscellaneous, 63.

The following shows the proportion of answers under each head from a few representative States:

	Dogs.	Fences.	Price of wool.	Miscellaneous.
Maine	10	1	4	.....
New York	17	8	4	4
Virginia	40	15	.....	2
Georgia	36	6	.....	3
Ohio	29	2	33	3
Missouri	30	12	9	2
Kentucky	49	3	2	2

Competent opinion seems well agreed that the dog stands in the way of an increased supply of one of the chief kinds of meat. In answer to this arraignment of the dog, it is sometimes stated that owners of sheep killed by dogs are compensated for their losses from the dog-tax fund of the municipality. It is true that a considerable number of counties do compensate owners of killed sheep, but the rate of compensation practically never exceeds the actual meat value of the animals killed. Such redress, while it may alleviate the seriousness of the sheep owner's immediate loss, is in no way conducive to the stability or extension of sheep raising.

Compensation for damage done by dogs seldom takes account of injury to that part of the flock not killed. These are often maimed and rendered so uneasy and unthrifty for months that the lamb crop of the following spring is seriously lessened. In addition to this uncompensated loss, there is the discouragement of the owner and the spread of the idea among other farmers that sheep raising is unsafe and unsatisfactory.

The treasurer of one county in Ohio reports that 649 sheep were paid for in 1913 as having been killed by dogs. In one Indiana county having 24,000 sheep, 300 were killed by dogs in 1912. This probably means that sheep were killed by dogs in one-fourth or one-fifth of the flocks. In the course of 10 years the flock that has not been invaded by dogs is the exception. News of such loss makes a much deeper impression upon non sheep raisers than does anything they may hear in regard to profits from a flock so fortunate as to escape the attack of dogs.

When the States levy taxes sufficiently high to curtail the number of unnecessary dogs and put upon the dog owner the burden of keeping the animal off of other people's farms, then the sheep industry will have a fair chance to contribute as it should to the nation's meat supply.

THE MAKING AND FEEDING OF SILAGE.

Silage during the last three decades has come into general use throughout the United States, especially in those regions where the dairy industry has reached its greatest development. Silage is universally recognized as a good and cheap feed for farm stock, and particularly so for cattle and sheep, are the observations made in Farmers' Bulletin 578.

Silage is the best and cheapest form in which a succulent feed can be provided for winter use, continues the bulletin. An acre of grain can be placed in the silo at a cost not exceeding that of shocking, husking, grinding, and shredding. Crops can be put in the silo during weather that can not be used in making hay or curing fodder, which is an important consideration in some localities.

A given amount of corn in the form of silage will produce more milk than the same amount when shocked and dried. There is less waste in feeding silage than in feeding fodder. Good silage properly fed is all consumed, and in addition very palatable. Like other succulent feeds it has a beneficial effect upon the digestive organs, and some stock can be kept on a given area of land when it is the basis of the ration.

On account of the smaller cost for labor, silage can be used for supplementing pastures more economically than can soiling crops, unless only a small amount of supplementary feed is required. Converting the corn crop into silage clears the land sooner than if the corn crop is shocked and husked, and because of these advantages silage, in the general opinion of dairy farmers, has increased milk production per cow and has increased the profits per acre.

CORN.

In all parts of the United States where the silo has come into general use the principal silage crop is corn. One reason for this is that ordinarily corn will produce

more food material to the acre than any other crop which can be grown. It is more easily harvested and put into the silo than any of the hay crops, such as clover, cowpeas, or alfalfa.

Furthermore, corn makes an excellent quality of silage. The legumes, such as clover and alfalfa, are liable to rot unless special care is taken to pack the silage thoroughly and force the air out. The only objection which has been raised concerning corn silage is the fact that it contains insufficient protein fully to meet the requirements of animals to which it may be fed. The best variety of corn to plant is that which will mature and yield the largest amount of grain to the acre, since the grain is the most valuable part of the corn plant. The variety commonly raised in any particular locality for grain will also be the most satisfactory to grow for silage.

CULTIVATION AND YIELD.

In some sections it is a common practice to plant the corn a little thicker when raised for silage than for grain. Weeds should be kept out, or they will be cut with the corn and may impair the quality of the silage. The amount of silage that can be obtained from an acre of corn will vary from 4 to 20 tons or more. A 50-bushel per acre crop of corn will yield about 8 to 12 tons of silage per acre, depending upon the amount of foliage and stalk that accompanies the ear. Southern varieties of corn as a rule carry a larger proportion of the plant in the form of stalk and leaves than do the northern-grown varieties. Corn should be harvested for the silo at about the same time that it is harvested for fodder.

SORGHUMS.

Sorghums, both saccharine and nonsaccharine, are readily made into silage. On account of their superiority to corn as drought-resisting crops they are more commonly grown in those regions of the West where the rainfall is too light or irregular for a good growth of corn. It is important that the sorghums be harvested at the proper stage of maturity if the best results are to be secured. A mixture of corn and sorghum has proved satisfactory in some localities where the rainfall was so variable as to make the corn crop uncertain.

CLOVER.

Clover can be used successfully as a silage crop yielding a palatable product high in protein, but it is preferable to make it into hay, or the silage made from clover, as from other legumes, has an objectionable odor, necessitating particular care in feeding to avoid tainting the milk. It does not pack so well as corn, so great care should be exercised in the tramping of the silage at the time of filling, and the depth of the silo should also receive particular attention. Clover should be chopped before siloing as a matter of convenience in feeding and also to secure more thorough packing, although it can be placed in the silo without chopping. Clover should be harvested when in full bloom and some of the first heads are dead.

COWPEAS, ALFALFA, AND SOY BEANS.

Cowpeas, alfalfa, and soy beans can be successfully made into silage by exercising the same precautions as with clover. They should be cut at the same time as for haymaking. However, it is ordinarily preferable, as with clover, to make them into hay rather than silage. The fermentations which take place in silage made of legumes cause a greater loss of nutritive material than with corn silage. Corn husks and pea vines from canning factories, beet pulp, and other by-products are also used in certain localities for filling the silo.

Corn for the silo can be cut either by hand or by machine. Hand cutting is practiced on farms where the amount of corn to be harvested is so small as to make the expense of purchasing a corn harvester too great to justify its use. Hand cutting is slow and laborious, and there are probably few localities now where the purchase of a harvester would not be a profitable investment.

There are on the market several makes of silage cutters that will give satisfaction. The capacity of the machine to be purchased is an important consideration which should not be overlooked. Many persons make the mistake of getting a cutter which is too small, thus making the operation of filling the silo very slow and interfering with the continuous employment of the entire force of men. It is better to get a machine large enough, so that every one will be able to keep busy all the time. The larger cutters are equipped with self-feeders, a labor-saving device which the smaller sizes lack.

The usual length of cutting varies from one-half to 1 inch. The latter is considered a little too long, since pieces of this length will neither pack so closely in the silo nor be so completely consumed when fed as will the shorter lengths. On the other hand, the longer the pieces the more rapidly can the corn be run through the cutter.

In case the corn has become too dry or ripe before it is put into the silo, water should be added to supply the deficiency of moisture necessary to make the silage pack properly. Unless it is well packed the silage will "fire-fang" or deteriorate through the growth of mold. Enough water should be added to restore the moisture content of the corn to what it would be if cut at the proper stage. The water may be added by running directly into the silo by means of a hose or by running through the blower. It is claimed that by running it into the blower the water is more thoroughly mixed with the cut corn.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. 1 WASHINGTON, D. C., JUNE 17, 1914. No. 45

FIVE RULES FOR BORROWING MONEY.

Five rules designed to convince farmers that there is no magic about credit are set down in Farmers' Bulletin 593, "How to Use Farm Credit," which the department has just published. Unless the farmer who is thinking of borrowing money fully understands these rules and is willing to be guided by them, the Government's advice to him is: *don't*. As it is, there are probably almost as many farmers in this country who are suffering from too much as from too little credit.

Of these rules the three most important are:

1. Make sure that the purpose for which the borrowed money is to be used will produce a return greater than needed to pay the debt.

2. The length of time the debt is to run should have a close relation to the productive life of the improvement for which the money is borrowed.

3. Provision should be made in long-time loans for the gradual reduction of the principal.

The first rule is, of course, the key to the wise use of credit. Between borrowing money to spend on one's self and borrowing money to buy equipment of some sort with which to make more money there is all the difference between folly and foresight, extravagance and thrift. If the money is borrowed for a wise purpose it will produce enough to pay back principal and interest and leave a fair margin of profit for the borrower into the bargain. If it is borrowed for a foolish purpose it will produce nothing and consequently there will be nothing with which to repay the loan. From this point of view it matters comparatively little whether the interest be high or low. It is the repayment of the principal that is the chief difficulty.

Rules 2 and 3 deal with the most satisfactory ways of repayment. Underneath them both is the same principle: The loan must be repaid with the money it earns itself. For example, if the money is used to buy a machine that will last 10 years, the machine must earn enough in that time to pay for itself or it never will. The loan, therefore, should be entirely repaid before the 10 years are up or the farmer will lose money on the transaction, paying out interest for no benefit in return. On the other hand, if too early a date is set for repayment, the machine will not have had sufficient opportunity to make the requisite money and the borrower may have difficulty in raising it elsewhere. Rule 3 provides for some form of amortization, the system by which the principal is repaid in installments so that the amount of the loan is continually diminishing and in consequence the interest charges also. Such a system is quite feasible when the loan is really productive, when it returns to the borrower a definite revenue each year. Tables showing the payments required to pay off principal and interest in varying periods of time are appended to the bulletin and are recommended to the serious consideration of everyone who contemplates borrowing money. The bulletin also advises the farmer to secure the lowest possible interest. At first sight this seems too obvious to be worth mentioning. Of course, the interest should be as small as possible. Everybody knows that—except the lender. But if the other rules are observed, if the borrower manages his financial affairs soundly, he will be surprised to find how much easier it is to obtain favorable terms. The right kind of lender does not want to foreclose mortgages; he wants his money back with a fair profit, like any other merchant. For money that is borrowed wisely, for money that is sure to be repaid, he charges low interest.

This, in fact, is why the Government has published these rules for borrowers. It is not so much a matter of driving a shrewd bargain as it is of observing a few fundamental principles which alone can make credit a blessing and not a curse.

PROGRESS AND RESULTS OF CATTLE-TICK ERADICATION.

In order to obtain comprehensive and practical information in regard to the results of the work of tick eradication which has been in progress in the South and Southwest since 1906, the work being conducted jointly by the United States Department of Agriculture and the State and county authorities within the area quarantined for Texas fever, a circular letter was recently widely distributed among the stockmen and farmers in 11 States in the territory bordering on the quarantine line. The replies were for the most part highly appreciative of the work accomplished and of the benefits derived therefrom in those sections which had been cleared of ticks.

Over 1,000 replies were received in all, the number from each State being: Alabama, 25; Arkansas, 124; California, 39; Georgia, 17; Mississippi, 356; North Carolina, 37; Oklahoma, 145; South Carolina, 27; Tennessee, 171; Texas, 59; Virginia, 24. The following is a brief summary of the information elicited:

1. INCREASE IN VALUE OF CATTLE SINCE TICK ERADICATION BEGAN IN 1906.

Some replies expressed the increase in percentage, but the bulk of them gave the increase in monetary

value per head. Upon averaging these for each State, the sums varied from $7.70 per head for Alabama to $15 per head for California, and the weighted average for the 11 States is $9.76 per head.

2. INCREASE IN WEIGHT OF CATTLE.

The great majority of the replies stated there was a substantial increase in the weight of cattle subsequent to the clearing of the ticks. The averages for the States ranged from 11 per cent in Texas to 23 per cent in Mississippi, and the average per cent of gain for the entire tick-free territory was 19.14. In other words, the cattle as a whole are considered to be about one-fifth heavier.

3. INCREASE IN QUALITY OF CATTLE.

The replies concerning the increase in the grade or quality of the cattle since tick eradication were considerably more flattering than those pertaining to the increase in weight. The lowest State average was 16 per cent for Georgia, and the highest 31 per cent for Mississippi. The average for the 11 States was 26.91 per cent, which means that the cattle in the tick-free sections at present are rather over one-fourth better in grade or quality than they were under quarantine conditions. This is proof, if proof were needed, that the unprofitable "scrub" and the tick go together, and that when the latter is banished, and not until then, is the influx of purebred animals on a large and profitable scale possible.

4. ANNUAL LOSSES BEFORE TICK ERADICATION.

There is practical unanimity in stating that considerable losses were caused by Texas fever before the inauguration of the tick work. The figures range from 9 per cent in Georgia to 15 per cent in Mississippi and North Carolina, and the average for the 11 States is 13 per cent. This is a trifle over one-eighth of the total cattle.

It requires but little imagination to see what a serious handicap to the cattle industry of the South an annual loss of this magnitude must be. Some idea of its extent may be had by taking the census figures for cattle in 1910. According to these there were in round numbers 15,000,000 cattle below the Texas-fever quarantine line, with a valuation of slightly over $270,000,000. One-eighth of this sum is $34,000,000, which represents roughly the annual loss from deaths alone, not counting the depreciation in numerous other ways, such as stunted growth, discrimination in markets, shrinkage in milk production, etc., all of which will more than double the amount named.

5. INCREASE IN CATTLE INDUSTRY SINCE REMOVAL OF QUARANTINE.

As might be expected, the answer to this question, with few exceptions, is in the affirmative, there being 984 who answered "yes," against 29 to the contrary. It may be remarked, too, that some of the latter were expressed as "not yet," implying that not sufficient time has elapsed since the raising of the quarantine to warrant a more definite reply.

6. INCREASE IN PURE-BRED CATTLE.

There were 929, or 94 per cent of all the replies, that stated there was an increase in improved blood. This is a healthy condition and will no doubt soon have a profound effect upon both the quantity and quality of the output. Some of the correspondents were exceedingly emphatic, one man in Alabama stating there were "five times as many," and another that "45 bulls had been imported into the county."

7. INCREASE IN MILK PRODUCTION.

The owners of dairy cows in the region cleared of ticks are evidently well satisfied with the results of the work, since 95 per cent of the replies admit that there was an increase, usually very substantial, in the yield of milk. The lowest estimates were from Alabama and Georgia, these two States averaging 15 per cent increase in each, while the highest average, 25 per cent increase, was from North Carolina, closely followed, however, by 24 per cent each in Mississippi and Oklahoma. The average for the 11 States is 23 per cent, which is a gain of nearly one-fourth in the total yield.

It is easy to see what a great advantage this would be if it could be applied to all the ticky cows in the South. The additional milk would in the aggregate be worth many milions of dollars.

8. INCREASE IN FEED CROPS AND SILO BUILDING.

That the eradication of the tick has acted as a strong impetus to the cattle and dairy industries is clearly evidenced in the answers received. A general movement in the line of growing feed crops and building silos is indicated. The affirmative replies to this question numbered 984, or 98 per cent of all received.

PRUNING CLIMBING ROSES FOR NEXT SEASON.

After the blooming season of climbing roses is over in June the department's landscape gardener advises that shoots should be pruned, so as to throw the growth of the plant into the new wood that bore no flowers this year, for this is the part of the plant that will bear next year. When a trellis is low (6 or 8 feet high), it is a good plan to cut off the shoots that have borne flowers this year clear to the ground. Climbing roses are a valuable aid in making an attractive home and will repay careful treatment.

Most people in following this advice may feel that they are ruining their bushes to cut them back so severely, but the young shoots that have started about the roots will surprise them by springing up with wonderful rapidity. Each bush will probably put forth several new shoots that will grow as long as those cut, or one shoot will grow much longer. In either case the trellis will soon be covered again. One

shoot in a Washington garden last year grew 20 feet after the bush had been cut down in this manner.

In the case of a high trellis a different method must be followed. The renewal of wood must begin from a point higher up instead of from the root, as the growth of a bush is not enough to replace all its top on a high trellis if required to grow so far. Only so much of the old wood should be removed after the flowers have bloomed as will enable the new shoots from the end of the remaining portion of the stalk to replace the old growth. About 4 feet is a safe measure of the amount that may be taken off.

Those who have grown climbing roses as a screen on their porches, in order to insure a fine bloom the coming year, will do well to follow the advice as given for the higher trellis. In other words, about 4 feet of the old stalks that have bloomed should be cut off immediately after the blossoms are withered. The foliage will recover within a very short period and continue to screen the porch, and next year an abundant crop of blossoms will be assured.

SELECTING THE BREED OF SHEEP.

Farmers who contemplate the raising of sheep on their farms are urged by the department to give considerable thought to the selection of a breed. In all, there are 30 breeds of improved sheep that have been brought to fixed types. Of these, 12 are already well established in the United States and others are gaining in popularity. Each has its own points of superiority and the farmer must be guided in his choice by the individual conditions, bearing in mind, however, the fact that any breed is superior to no breed.

Although it is hardly to be expected that every farmer in a neighborhood will select the same breed of sheep, there are several advantages to be derived from a number's doing so. For example, new rams can be purchased for the common benefit when any individual owner might well hesitate at the expense, and if the lambs are ready in large numbers for market at the same time they may be shipped cheaply by the carload or the buyers may find it worth their while to come after them.

In selecting a breed it should be remembered that no system of sheep farming is likely to be long successful which leaves out of account either wool or mutton. One or the other, however, may well be emphasized according to local conditions. Thus if pasturage is sparse, feed expensive, and marketing arrangements poor, wool will naturally be the first consideration. On the other hand, where conditions are more favorable, a breed will be selected for its mutton qualities. Even then, however, there is a wide latitude of choice.

In order to assist the farmer in this choice, the department has just published in Farmers' Bulletin 576, "Breeds of Sheep for the Farm," descriptions and photographs of the principal breeds, together with the addresses of the secretaries of various breeding associations, from whom additional information can be obtained. These breeds may be divided into three main groups—the Middle Wool, the Long Wool, and the Fine Wool. All the Middle Wool breeds have been developed primarily for mutton. The Long Wools also are bred chiefly for mutton. They are the largest of all sheep and thrive best where food can be obtained without much travel. They do well also in regions of excessive rainfall. The Fine Wools, including the American Merinos and the Rambouilett, have been bred almost entirely for their wool alone.

Some of these many breeds, says the bulletin, should be selected and maintained, for it is rarely good policy to cross sheep.

DO THE PLANETS AFFECT OUR WEATHER?

One of our correspondents wishes us to tell him through the News Letter whether the positions of the planets have any effect on the weather.

A few people strongly assert that they do, while many others, like our correspondent, have their doubts, but are willing to be "shown." Those, however, who have given the subject careful attention are positive that none of the planets, nor even the moon, ever has any appreciable effect on the weather.

As a matter of fact all weather changes depend ultimately upon temperature differences. The temperature, as we know, constitutes of itself a most important weather factor. Another and equally important weather factor is rainfall. But to obtain rain it is necessary first to evaporate water from the surface of the earth, and this, as every one knows, requires heat. Still another important weather factor is the direction and force of the wind, and this, too, requires heat, for the winds will not blow unless the temperature is different at one place from what it is at another any more than the air will draw up a chimney when there is no fire in it.

Since then the heating of different parts of the earth and its atmosphere to different temperatures is the real cause of the winds and of all weather changes it follows that the moon and the planets can affect the weather only so far as they supply heat.

Now, according to accurate measurements made with the most delicate instruments, the amount of heat sent to the earth by all the planets and also by the moon is insignificant in comparison to the amount that comes from the sun. Hence we could not expect either the planets or the moon appreciably to affect the weather. They do not supply enough heat, the one thing that causes all our weather changes.

To most people the above reasoning may seem quite sufficient and conclusive, but there is still another and an entirely different method of testing the whole question. We can observe the positions of the planets and the kind of weather during each posi-

tion and see whether the same sort of weather always comes when the planets are in the same position. This kind of examination has often been made, both for the planets and for the moon, but not the slightest influence of either upon our weather has ever been found.

To sum up: We have every reason to believe that neither the planets nor the moon can have any appreciable effect on the weather, because they furnish so little heat upon which all weather changes ultimately depend, and this belief is fully supported by weather records.

The belief, still to be found in all countries, that the planets and the moon do affect the weather never had any scientific basis whatever; it is only a remnant of the many superstitions generated and fostered by that other and greater superstition, astrology.

FARM PRICES FOR POTATOES 48 PER CENT HIGHER.

According to figures published by the Bureau of Statistics (Crop Forecasts), in the recent Agricultural Outlook, the prices of potatoes paid to the farmer on May 1, 1914, averaged 71.4 cents a bushel, which is 23.2 cents higher than the average price for May 1, 1913, or a gain of about 48 per cent.

In Maine, where the price this year was 64 cents, there was a gain of 24 cents per bushel over the price of May 1, 1913; in Vermont, with a gain of 10 cents, the price was 77 cents. In Massachusetts there was a gain of 21 cents, New York 23 cents, New Jersey 13 cents, Pennsylvania 27 cents, West Virginia 30 cents. In Virginia and North Carolina there was an increase of 14 cents per bushel, the prices on May 1, 1914, in those States being 88 cents and 97 cents, respectively. South Carolina and Louisiana were the only States showing a decrease, but with a decrease of 14 cents in South Carolina and 10 cents in Louisiana, the prices this year were $1.31 and $1, respectively. In Mississippi, where the gain was 7 cents, the price was $1.12, and in Alabama, with a gain of 3 cents, the price was $1.18.

In the Central States the increase in price per bushel ranged from 24 cents in Wisconsin to 36 cents in Indiana. In South Dakota there was a gain of 41 cents at a price of 77 cents; in New Mexico, with an increase of 40 cents, the price was $1.10. The States where the prices were lowest were Idaho, Washington, and Oregon, with gains of 18 cents, 10 cents, and 17 cents at prices of 48 cents, 42 cents, and 37 cents, respectively.

NO FREE COPIES OF BIRD BULLETIN AVAILABLE.

Articles have recently appeared in newspapers in various parts of the country to the effect that there has been a reprint of Farmers' Bulletin No. 513, Fifty Common Birds of Farm and Orchard, and that copies of the same could be obtained upon application to Senators, Representatives, or Delegates in Congress. As a matter of fact, no reprint has been ordered by the department, and none has been authorized by Congress. Copies of the bulletin can be obtained only by purchase from the superintendent of documents, Government Printing Office, Washington, D. C., at the price affixed by him, namely, 15 cents per copy.

WIRELESS WEATHER FORECASTS FOR GREAT LAKES.

A daily weather bulletin for the Great Lakes is now being sent out from the radio station at Radio, Va., according to an agreement just arrived at between the United States Weather Bureau and the United States Naval Radio Service. This bulletin is sent out in two parts. The first consists of code letters and figures describing the weather conditions actually prevailing at 8 p. m. that day at various points along the Great Lakes. The second part of the bulletin is a special forecast of the winds that will probably be encountered on the lakes. This is distributed to shipmasters on the Great Lakes by the Naval Radio Service during the season of lake navigation—usually from about April 15 to December 10—in the same way that weather conditions for the North Atlantic Ocean and the Gulf of Mexico are sent out. The latter service was begun in July of last year. It proved popular and the Weather Bureau was encouraged to extend the service to the Great Lakes.

HOME WORK FOR AGRICULTURAL STUDENTS.

MASSACHUSETTS PLAN FOR COMBINING PRACTICAL EXPERIENCE WITH CLASSROOM INSTRUCTION.

A plan for combining actual work on the home farms of students with classroom instruction in the county agricultural schools has been developed in Massachusetts and is being copied in several other States. Each student is required to outline some project of a farm enterprise which he will carry out on his home farm under the direction and supervision of his instructor. He himself, however, is responsible for the proper performance of the work and must report upon its progress. The project is considered as much a part of the student's work as attendance in the classroom. This plan bridges the gap between the theoretical and the practical, bringing the instructor into contact with actual farm problems.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. 1 WASHINGTON, D. C., JUNE 24, 1914. No. 46

EGGS BY PARCEL POST.

A System of Marketing That Offers Possibilities of Better Prices for the Producer and Fresher Articles for the Consumer.

That eggs can be marketed successfully by parcel post, and that this method frequently secures a better price for the producer and a fresher article for the consumer, has now been demonstrated to the satisfaction of the experts in the department. The department conducted tests that covered a period of five months. At the end of that period it came to the conclusion that the parcel post was of particular value to the man whose flock was too small or who lives too far from express service to permit him to ship his eggs in the regular commercial case, which holds 30 dozen eggs.

In the course of these experiments the department shipped 9,131 eggs in 466 lots. Of these 327, or slightly less than 3.6 per cent, were broken, but only 209, or slightly less than 2.3 per cent, were absolutely wasted. The others, though broken, could still be used. The percentage of breakage, moreover, will be greatly reduced, it is said, when the employees of the post office become more accustomed to handling such fragile matter.

That the eggs should be properly packed is, of course, essential. This implies time, care, and some expense, and is one reason why no attempt should be made to market by parcel post any but the finest quality of eggs, for they alone will bring remunerative prices. Moreover, if the customer who buys in small lots finds that any considerable proportion of his purchases is undesirable or even unattractive in appearance, he will not trouble to ask for deductions on that account; he will simply discontinue his orders. The producer, therefore, must see to it that all the eggs the postman delivers are what he represents them to be.

This can only be done by candling them. Candling, "the process of testing eggs by passing light through them so as to reveal the condition of the contents," is omitted by many producers, who rely on care in collecting to eliminate all bad eggs. It is, however, impossible to avoid an occasional accident, and candling is therefore advisable as an extra precaution. A simple outfit can be made out of a small hand lamp and an ordinary pasteboard box sufficiently large to be placed over the lamp, after the ends have been removed, without risk of fire. In order to supply air to the inclosed lamp, notches should be cut in the edge on which the box rests. A round hole is then cut in the box at the level of the lamp flame and the candling done by holding each egg against this hole while the rest of the room is in darkness. The light from the lamp reveals the contents of the egg, and those that show any defect can be rejected.

If possible, only infertile eggs should be sent to market. Fertile eggs deteriorate rapidly in warm weather and are the cause of much loss. A broody hen on the nest or accidental exposure to a high temperature may start incubation and cause the egg to spoil and injure the shipper's reputation. It is advisable, therefore, to retain the fertile eggs for home use or dispose of them in some other way than through the parcel post. This is also true of soiled eggs. Eggs should never be washed when intended for high-class trade, since the process removes a natural mucilaginous coating and opens the pores of the shell.

After this thorough elimination of the unfit, the eggs that remain should be carefully packed in a container of corrugated pasteboard, metal, wood, or other suitable material. The post-office regulations require this container to be so wrapped that nothing can escape from the package, and each egg in addition to be wrapped separately in excelsior, cotton, or some such material. Any soft paper serves the purpose quite well. As for the container itself, there are many kinds on the market, and the Department of Agriculture investigators have not attempted to decide which is the best. Instead, they refer inquirers to the various State experiment stations which have available information on this question.

In packing eggs it is well to sort them as far as is practical according to size and color and to keep for home use those which are irregular in shape, unusually long, or thin-shelled. Containers that have been badly stained by broken eggs should be replaced by new ones and the package wrapped as neatly as possible. In short, every effort should be made to deliver as attractive a package as possible into the hands of the customers. The extra expense will be little and the returns in increased trade great.

The larger the shipments that the producer can arrange to make, the cheaper can he afford to sell his eggs. Within the first and second zones of the parcel-post service, a package costs 5 cents for the first pound and only 1 cent for each additional pound. Ordinarily eggs weigh about 1½ pounds a dozen, which, with the additional weight of the wrapping and container, would make a package of a dozen eggs weigh between 2 and 3 pounds. The postage on this would be 7 cents. If another dozen eggs were included in the

package, the postage would not be more than 9 cents, or 4½ instead of 7 cents a dozen eggs.

To the value of the eggs and the cost of postage must be added the cost of the container and the wrapping. For two dozen eggs this may be estimated at 8 cents. With postage at 9 cents it would therefore cost 17 cents to market two dozen eggs, or 8½ cents a dozen. By shipping in 10-dozen lots, it is estimated that the marketing cost can be reduced to 4.7 cents a dozen.

Where the container can be used more than once this cost can of course be somewhat reduced. Large sized containers will stand from two to four trips, smaller ones three to five, so that it will pay the producer to induce his customers to return the containers periodically. The postage required for this is of course deducted from the bill for the next shipment.

Although it is obviously advantageous both to producer and consumer that the eggs be shipped in large quantities and consequently economically, it must be remembered in taking orders that the supply of eggs undergoes the greatest fluctuations. In times of scarcity it is not good policy for the producer to send all his output to one customer, neglecting his other friends, nor in times of plenty can he expect to dispose of his entire stock to his regular customers. These points must be given due consideration and the quantities that are to be supplied at each season of the year carefully stated in the contract. The price, too, varies with the supply. One good method of determining this is to take as a basis the wholesale price of eggs on the open market and add to this a certain number of cents a dozen for the new-laid parcel post eggs. Care should be taken, however, to see that there is no possibility of any misunderstanding arising in regard to the basic price. To obviate this, the quotations published in a given newspaper or some other similar authority may be accepted.

Eggs are scarcest and highest in the fall. Chickens should, therefore, be hatched early enough to begin laying at this season. Moreover little difficulty will be experienced then in disposing of the entire output and it will in consequence be unprofitable to divert any of the supply to home purposes. This difficulty can be overcome by preserving eggs for home use in the spring, when they are plentiful and cheap. A solution of water glass, which can be obtained at drug stores for 75 cents a gallon, should be used for this purpose, each quart being diluted with 10 quarts of water, which has been boiled and cooled. The eggs should be packed in stone jars or crocks and the solution poured over them, or they may be carefully placed in the solution each day. Eggs kept in this way are perfectly good but naturally they do not command the prices of those newly-laid. The shells sometimes break in boiling, but this may be avoided by puncturing the end with a pin just before they are dropped into the water.

The only drawback to marketing eggs by parcel post appears to be the time and trouble involved in packing them. This is compensated for by the extra price that can always be obtained for products that are absolutely reliable. At bottom, therefore, the shipper's success depends upon the care with which he safeguards the reputation of his products. Satisfied customers will soon build up his business for him. Any post office will furnish complete information in regard to regulations and rates, and, as already stated, the several State experiment stations have information in regard to the various types of shipping boxes. The results of the United States Government's investigation of the matter have been published in Farmers' Bulletin 594, of the Department of Agriculture, which will be sent free on request.

DIRECTIONS FOR SHIPPING MILK TO MARKET IN ORDER TO REDUCE BACTERIA.

With the approach of hot weather the department is warning dairymen again not to hold their milk before shipping it to market. A practice prevalent in some places is to take the morning milk, combine it with the afternoon milk of the same day and ship this combination early the following morning. This means that the morning milk is kept through the heat of the day. When it reaches the consumer, 24 hours or more old, the bacteriological count is high. This explains, the department experts say, why milk from dairies in which all the conditions appear to be excellent is frequently found to be bacteriologically bad.

The remedy recommended by the department is to hold the afternoon milk, properly cooled, through the cooler hours of the night, and ship it the next morning with the morning milk, also properly cooled, without mixing the two. It is of course essential to this plan that the train schedules be adapted to it, but it is felt that when the importance of the change is fully recognized this difficulty will be overcome. Such procedure in cooling and handling would materially reduce the possibility of sour milk reaching the markets.

Shippers are also urged by the department to see that the milk is thoroughly cooled, as an important step in keeping its bacteriological count low.

ALCOHOL IN FRUIT JUICES.

By a recent decision of the department all fruit juices to which alcohol has been added must be plainly labeled to show this if they are to be shipped in interstate commerce after September 1, 1914. In the opinion of the department, such names as "Peach

juice," "Cherry juice" should be applied only to fruit juices which are unfermented and which contain no added sugar, alcohol, or other substances. In the past alcohol has been frequently added as a preservative to these preparations which are used for such purposes as flavoring beverages or preparing cordials. After September 1, however, goods that do not comply with the new ruling and indicate this fact on their labels will be denied entry into this country, and if found in interstate commerce will be subjected to appropriate action by the authorities.

RECENT PUBLICATIONS FOR DISTRIBUTION.

No publications are sold by the department; therefore do not send money to this office.

Copies of publications listed will be sent free upon application to the Editor and Chief, Division of Publications, Department of Agriculture, Washington, D. C., as long as the supply lasts.

When this department's supply is exhausted, publications can be obtained from the superintendent of documents, Government Printing Office, Washington, D. C., by purchase only, and at the prices noted herein.

Send all remittances to the superintendent of documents direct. His office is not a part of the Department of Agriculture.

Among the most recent pamphlets issued for distribution are:

Breeds of Sheep for the Farm. 10 illustrations. (Farmers' Bulletin 576.)

Discusses the breeds in a way to enable those not familiar with them to know which are likely to meet their requirements.

The Making and Feeding of Silage. Contents: Making and Feeding Silage.—Silage for Horses.—Silage for Beef Cattle.—Silage for Sheep. 24 pages, 6 illustrations. (Farmers' Bulletin 578.)

Gives methods and costs of growing and harvesting silage, feeding value, and instructions for filling the silo. Adapted for general circulation. Supersedes Farmers' Bulletin 556.

The Common Mole of the Eastern United States. 10 pages, 4 illustrations. (Farmers' Bulletin 583.)

This bulletin treats of the mole east of the one hundredth meridian. It contains an account of its habits, the nature of the damages committed by it, and the methods employed for its destruction. It also seeks to remove some popular misconceptions concerning this little animal. It is of interest to gardeners, lawn makers, caretakers of parks and cemeteries, etc.

Natural and Artificial Incubation of Hens' Eggs. 16 pages, 3 illustrations. (Farmers' Bulletin 585.)

Describes incubation, natural and artificial. Of interest to poultry raisers everywhere.

Effects of Tick Eradication on the Cattle Industry of the South. By W. F. Ward, Senior Animal Husbandman, Animal Husbandry Division, Bureau of Animal Industry. Pp. 26, figs. 8.

This paper details the recent improvements in the cattle and pastures in the tick-free areas of the Southern States and suggests methods of improvement which should be adopted as soon as the ticks have been eradicated from any section. Intended for distribution in the tick-infested region.

The So-called Tobacco Wireworm in Virginia. By G. A. Runner, Entomological Assistant, Southern Field Crop Insect Investigations. Pp. 30, pls. 2, figs. 5. Contribution from the Bureau of Entomology. (Professional Paper.) May 18, 1914. (Department Bulletin 78.) Price, 5 cents.

This bulletin is descriptive of an insect enemy of tobacco and corn. Of especial interest in the eastern tobacco and corn districts.

The Rose Aphis. By H. M. Russell, Entomological Assistant, Truck Crop and Stored Product Insect Investigations. Pp. 15, pls. 3, figs. 4. Contribution from the Bureau of Entomology. May 19, 1914. (Department Bulletin 90.) Price, 5 cents.

This bulletin is of interest to rose growers everywhere.

Cost and Method of Clearing Land in the Lake States. By Harry Thompson, Agriculturist, and Earl D. Strait, Scientific Assistant, Office of Farm Management. Pp. 25, figs. 10. Contribution from the Bureau of Plant Industry. May 16, 1914. (Department Bulletin 91.) Price, 5 cents.

This bulletin gives details of cost and methods of clearing land in the Lake States and is of special interest to settlers in the logged-off sections of Michigan, Wisconsin, and Minnesota.

ORIOLES, SWALLOWS, AND NIGHTHAWKS VALUABLE IN DESTROYING THE COTTON-BOLL WEEVIL.

Of all the birds known as natural enemies of the cotton-boll weevil, orioles, swallows and nighthawks are the most important, according to the Biological Survey. Insect specialists of the bureau have made extensive investigations of the subject, which have developed that there are 60 kinds of birds that eat the weevil.

The nighthawk, or bullbat, catches the weevils on the wing in considerable numbers, especially during their migration. Unfortunately, the nighthawk is shot for sport or eaten for food in some sections of the South, but its value for food is infinitesimal as compared with the services it renders the cotton grower and other agriculturists, and every effort should be made to spread broadcast a knowledge of its usefulness as a weevil destroyer, with a view to its complete protection. The orioles, barn swallow, rough-wing swallow, bank swallow, cliff swallow, and the martin are all persistent enemies of the boll weevil.

From the standpoint of the farmer and the cotton grower these swallows are among the most useful birds. Especially designed by nature to capture insects in midair, their powers of flight and endurance are unexcelled, and in their own field they have no competitors. Their peculiar value to the cotton grower consists in the fact that, like the nighthawk, they capture boll weevils when flying over the fields, which no other birds do. Flycatchers snap up the weevils near trees and shrubbery. Wrens hunt them out when concealed under bark or rubbish. Blackbirds catch them on the ground, as do the killdeer, titlark, meadow lark, and others; while orioles hunt for them on the bolls. But it is the peculiar function of swallows to catch the weevils as they are making long flights, leaving the cotton fields in search of hiding places in which to winter or entering them to continue their work of devastation.

Martins are not at all fastidious about the outward appearance of their dwellings, and a large gourd suspended from the top of a dead tree or a pole, or any kind of a weather-tight box or barrel, however rude, when divided into compartments answers their needs as well as the most costly and ornamental house. The rooms should be about 4½ inches wide, 7 inches high, and 8 inches deep, with entrances about 3 inches in diameter. They will not build close to the ground, having a wholesome fear of cats and other invaders; hence the houses should be elevated from the ground

not less than 15 feet. Drinking water is essential for martins and all other swallows, and the presence of a small pond, lake, or river greatly increases the chances for colonization.

TO STUDY ROAD CONDITIONS IN 100 COUNTIES.

Detailed studies of local road building systems in 100 counties are now being carried on by the department in cooperation with the State highway departments and local road authorities.

The purpose of this study is to discover the points of excellence and defects in existing local methods of building and maintaining roads which will aid the State authorities to put local road management on a systematized basis. The cooperating State authorities have been asked to designate counties that present typical and exceptional features as to topography, character of road materials, methods of construction and maintenance, administrative organization, methods of road financing, and traffic conditions. From these lists 100 counties will be selected, and in these counties the Division of Road Economics will make intensive studies.

This investigation is prompted by the fact that there is at present very little knowledge as to the most effective and economical methods by which a county can develop its roads. At present the methods of financing local road improvements vary from calling on farmers for a certain number of days' labor in lieu of a road tax, or the use of county prisoners in road construction, to bond issues or maintenance of roads from dramshop license funds.

The department will study all of these systems with the view to determining what system or combination of systems works best in actual practice.

There is, moreover, at present no standard system of keeping accounts for road building and maintenance, and as a result, while some counties know to a penny the purpose for which money was spent, others have no definite check or reporting system. Among various counties with the same conditions cost for excavation or other labor is anything but uniform, and many counties, because of the absence of definite knowledge, fail to use local and cheap materials, and construct roads which are unnecessarily expensive for their purpose, or which will wear out before the bond issues are redeemed. The investigation will include a careful study of the use of convict labor in road construction.

In connection with the scientific study the department's highway engineers will advise freely with local officials as to improvements, and thus give each county visited the advantage of direct cooperation, engineering supervision, and assistance.

These investigations, it is believed, will yield important economic data bearing especially on the benefits and burdens of road improvement and showing the extent to which financial outlay under given typical conditions is justifiable.

The heads of State highway departments are manifesting great interest and are cooperating cordially in this work. These data when obtained will be published and thus made accessible to all county and State road officials.

RAILROADS FINED FOR VIOLATIONS OF QUARANTINE AND 28-HOUR LAWS.

Railroads have been fined $2,450 and costs for the violation of the live-stock quarantine law and the 28-hour law, according to recent announcements of the department. Other instances of fines imposed for violations of these laws have been made public in previous announcements of the department.

Of the railroads mentioned in the most recent announcements, the Atlantic Coast Line Railroad Co. suffered the largest total fine. A penalty of $100 and costs was imposed on this railroad in each of eight cases for violation of the live-stock quarantine law. The Mobile & Ohio Railroad Co. also violated this law and was fined a total of $500 and costs ($100 and costs being the fine in each of five cases). Two other railroads were fined for similar violations, the Missouri, Kansas & Texas Railway Co. being fined $100 and costs in each of two cases and the Seaboard Air Line Railway Co. $100 and costs in one case.

For violating the law which stipulates that live stock shall not be confined in the cars for more than 28 hours without unloading for feed, water, and rest five railroads have been recently fined. The Chicago, Rock Island & Pacific Railway Co. in Nebraska was fined $250 and costs of $4.17. The Pennsylvania Railroad was fined $100, and the Cincinnati, New Orleans & Texas Pacific Railway Co. was fined $100 and costs of $18.95 for breaking the same law. The Union Pacific Railroad was fined in one case $100 and costs of $22.42 and in another case $100 and costs of $22.88, while the Chicago Great Western Railroad Co. was fined $200 and costs of $3.67.

$4,700 FINE FOR RAILROAD.

For violations of the law that prohibits the confinement of live stock for more than 28 hours without unloading for feed, water, and rest one railroad has been fined $4,700. This total represents the penalties in 21 cases against the Pittsburgh, Cincinnati, Chicago & St. Louis Railway Co. In addition, costs of $30.20 had to be paid by the railroad for two of the cases.

In addition to the above announcement, the Department of Agriculture has just issued notice of a total fine of $1,250 in six cases against the Pennsylvania Co. for violation of the same law. The total costs in the six cases were $29.70.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., JULY 1, 1914 No. 47

NO WATER MAY BE ADDED TO WINE.

Following a public hearing on the question of what constitutes wine, the Secretary of Agriculture under date of June 12, 1914, has promulgated a wine decision which abrogates food inspection decisions 109 and 120, defines wine, and prohibits the use of the name "wine" on products made by the addition of water to the juice, pomace, or pulp of grapes.

The food inspection decision of June 12, which supersedes these former decisions, defines wine to be "the product of the normal alcoholic fermentation of the juice of fresh, sound, ripe grapes, with the usual cellar treatment."

This action is taken, in the language of the decision, because "the Department of Agriculture has concluded that gross deceptions have been practiced under food inspection decision 120." Food inspection decision 120 formerly permitted certain classes of wine manufacturers to add water and sugar to the pomace or pulp of grapes from which the juice has been partially expressed, and then, after allowing the mixture to ferment, to call the beverage "Pomace wine." Where sugar was added (after fermentation) for the purpose of sweetening, decision 120 required such wines to be characterized as "Sweet pomace wines."

Food inspection decision 109, now abrogated, held that the addition of water or sugar to the must prior to fermentation was considered improper and that a product so treated should properly be called a "sugar wine" or labeled in such fashion as to indicate clearly that it was not made from the untreated grape must but contained added sugar.

In view of the fact that the juice of grapes in many unfavorable grape-growing seasons is either too acid or too sweet to make wine, the new decision permits correction of the natural defects in grape musts and wines due to climatic or seasonal conditions by additions in unfavorable seasons as follows:

In the case of excessive acidity, neutralizing agents which do not render wine injurious to health, such as neutral potassium tartrate or calcium carbonate;

In the case of deficient acidity, tartaric acid;

In the case of deficiency in saccharine matter, condensed grape must or a pure dry sugar.

The foregoing definition does not apply to sweet wines made in accordance with sweet wine fortification act of June 7, 1906. (34 Stat., 215.)

The decision prohibits the addition of any water to grape juice in making wine; and in cases where water is added to pomace of grapes, the decision provides as follows:

A product made from pomace, by the addition of water, with or without sugar or any other material whatever, is not entitled to be called wine. It is not permissible to designate such a product as "pomace wine," nor otherwise than as "imitation wine."

The new decision becomes effective immediately for all wines prepared on or after June 12, 1914. Inasmuch as many wine makers have prepared previous vintages in accordance with the department's rules, as laid down in food inspection decisions 109 and 120, certain leeway will be allowed them with reference to such products actually manufactured prior to the adoption of the new decision. On this point the Department of Agriculture has issued the following statement:

Proceedings under the food and drugs act with respect to fermented beverages not prepared in conformity with this decision, but which, it is claimed, have been manufactured in good faith in compliance with either food inspection decision 109 or food inspection decision 120, will not be recommended by the Department of Agriculture, prior to June 12, 1916, if it shall appear, upon investigation, that the articles with respect to which the claim is made were actually manufactured prior to the date of this decision and are labeled in conformity with either food inspection decision 109 or food inspection decision 120, as the case may be.

WOOLGROWERS URGE LEGISLATION.

As a result of the sheep and wool conference held recently in Washington growers and manufacturers are urging a Federal bounty system as a means to exterminate predatory animals on western ranges, the enactment of State laws to control dogs in farm States, the standardization of wool by the Department of Agriculture, the establishment of Government sheep-breeding farms to determine the breeds of sheep best adapted to various conditions, and the creation of wool colleges for the promotion of more scientific methods in wool production.

In the report addressed to the Secretary of Agriculture by a committee appointed for the purpose, it is pointed out that the sheep industry of the United States is now valued at approximately $230,000,000, but that unfavorable conditions are causing the supply of sheep to decrease rapidly. The conference was called by the Secretary in order to consider the problems presented by this situation.

49760°—14

The committee presents its conclusions in part as follows:

A careful estimate indicates that approximately $15,000,000 worth of poultry and live stock are annually destroyed in this country by the depredations of predatory wild animals. In the Western States, on which most of this burden falls, the great percentage of these predatory animals are bred and raised on land properly withdrawn from settlement by the Federal Government. Under such conditions those interested in our animal husbandry feel that the Nation should assume its share of this burden through a system of national bounties.

In the farming States thousands of sheep are annually destroyed by dogs, and this menace keeps many farmers from taking up sheep husbandry, thus reducing the nation's supply of meat and wool. There is a pressing need for better legislation on this subject in many of the States, and we respectfully suggest that the Department of Agriculture could materially assist in securing such legislation by giving this movement its moral support in every way possible.

At the present time we have in the United States no generally accepted standards for the determination of the various grades of wool. This lack of standardization makes it impossible for the woolgrower to know the grade of wool he is producing or the value of it in the market. We appreciate the most useful work done by the Department of Agriculture in the standardization of cotton and we urgently petition that at the earliest possible moment your department will take up the matter of standardizing wool.

Woolgrowing is a science that requires not only the sound judgment of practical breeders, but the technical knowledge possessed by the trained expert. We therefore appreciate that under present conditions there is immediate need for the establishment of Government sheep-breeding farms, one of which shall be located in the intermountain States and another in the central part of the United States, where, under supervision of experts, experiments may be conducted to determine what type of sheep produces the most desirable quality of wool and is best adapted to the conditions existing in the various parts of the territory concerned. In connection with this Government breeding farm, we would urge the maintenance of a wool college where a short course in wool, woolgrowing, and sheep breeding would be available to those connected with our sheep industry. The urgent need of such institutions leads us to ask that every effort be made to establish them in the near future.

TO PRODUCE MORE COTTON IN A SHORTER PERIOD.

The need of shortening the growing season of cotton has been recognized as the best means for securing protection against injury from the boll weevil, and the department has been recommending a system of cotton culture which aims to secure the production of more cotton in a shorter period of time. The system is also important for regions where the crop is limited by drought or by short seasons, as in the northern districts, and should help to remedy the backward state of what has been considered in the past a "sure-crop" industry. The department's Farmers' Bulletin (No. 601), entitled "A New System of Cotton Culture and Its Application," has been issued to give the details to those who may profit by it.

The danger of injury from the boll weevil is greatest under conditions that favor the luxuriant growth of the young plants and induce the formation of large numbers of vegetative branches which produce no bolls. The control of the formation of these branches is the keynote of the new system. The suppression of these branches avoids injurious crowding of the plants and also makes it possible to leave more plants in the rows than is now customary. The most important consideration which the new system requires is the placing of plants closer together during the earlier stages of growth until the stalks have grown beyond the stage where vegetative branches are produced.

SURE REWARDS FOR MORE INTELLIGENT FARMING.

It is particularly true of the cotton industry that the more intelligent and skillful the farming the larger the material rewards. And yet, cotton has so long been considered a "sure crop" that often it is cultivated under the most careless methods. This is one of the chief reasons for the backward state of the industry to-day. The invasion of the boll-weevil pest has, however, been forcing upon cotton raisers the necessity of more improved methods. Cotton is every year becoming less a "sure crop." The rapid expansion of cotton culture in foreign countries is an additional reason why more careful methods must be adopted in this country to attain the maximum results.

The first step is to secure the attention of the intelligent farmer and convince him of the truth of the principle upon which the new system is founded. He may then observe and experiment for himself with rows of cotton thinned to different distances and at different stages of growth and may see for himself the relation of the habits of the plants to cultural problems.

Many intelligent farmers are aware of the fact that rows of cotton accidently left without thinning are sometimes much more productive than rows that were thinned in the usual manner and have reflected on the possibility of securing larger crops by closer planting, but the underlying principle has not been understood. The behavior of cotton under different conditions is so variable that any farmer might well hesitate to adopt a method of culture suggested by an occasional occurrence like the production of a larger crop on an unthinned row.

In each cotton-growing community there are usually some farmers who believe that cotton should be left closer together in the rows, but the tendency in recent years has been toward wider spacing, owing to a general recognition of the evil effects of having the plants too close together, especially under conditions that favor luxuriant growth. Those who use narrow

spacing may boast of phenomenal yields in some seasons, but in other years they appear at a disadvantage with their neighbors. The possibility of making a safe combination of the two conflicting methods seems not to have been suggested. The same conflict is shown in the results of formal experiments to determine the best planting distances as in the popular opinions on the subject. Wide spacing in the rows seemed better in some cases and narrow spacing in others, so that no definite conclusions could be reached.

The theory of wider planting has its limitations as well as that of closer planting. To reduce the number of plants by wider spacing in the rows means that a longer period of time is required to produce a crop. This is true because large luxuriant plants do not begin to produce flowers and bolls as early as plants of more restricted growth. It may seem more logical to many that the plants making the most rapid growth must produce the earliest and largest crop, but this is not true. Large luxuriant plants are later in setting and maturing a crop because the young plants of luxuriant growth develop limbs producing no bolls at the expense of the lower fruiting branches necessary to the production of an early crop. The limbs of a cotton plant which produce no flowers or bolls are called "vegetative branches" or "wood limbs" to distinguish them from the fruiting branches.

The row rather than the individual plant must be considered as the unit under the system as recommended. The form of the row demands first attention, and through improving it come the advantages of the new method. More plants are left in the rows, and yet injurious crowding is avoided. Plants that have numerous vegetative branches are more crowded at 2 or 3 feet than plants with single stalks at 8 or 10 inches. With the vegetative branches controlled, the spacing is no longer a question of feet, but of inches. Rows spaced at 6 inches have usually given better results than those at 12 inches or any greater distance.

By avoiding the development of the large wood limbs the rows are kept narrower and more hedgelike, so that the fruiting branches receive sunlight throughout the season. This provides much more favorable conditions for the ripening of the crop. When the vegetative branches are allowed to shut off the light by growing up between the rows, most of the bolls on the lower fruiting branches fail to reach normal maturity. Fields of large luxuriant plants often produce very small crops because only the upright growing ends of the stalks and vegetative branches have access to the light. This undesirable condition is avoided by restricting the development of the vegetative branches in the earlier stages of growth.

The number of vegetative branches is also influenced by temperature and soil conditions. If the weather remains cool, or if the soil is very dry, not many vegetative branches will develop, even when the young plants are widely separated; but if the conditions favor a luxuriant development of the young plants, early thinning will result in the development of a large number of vegetative branches, and the subsequent crowding will be great. Even in the absence of any disease or insect pests the crop may be ruined by crowding alone.

SUPPRESS THE VEGETATIVE BRANCHES.

"Suppress the vegetative branches" is the advice of the department to farmers desiring to experiment with the new system. Practical experiments must be undertaken by those desiring to understand the method; merely reading about the experiments of others is not sufficient.

How long the thinning should be delayed to suppress the vegetative branches and how close the plants should be left in the rows are questions that the skillful farmer should learn to determine for himself, since the actual conditions must be taken into account to secure the best results. If the farmer does not look into the subject far enough to grasp the underlying principle, he is not likely to be able to appreciate the new method or to use it to the best advantage.

The two features of the new system—deferred thinning and closer spacing—must be properly combined in order to insure a favorable result. Most farmers believe that either of these changes will injure the crop, and the danger is that they will try one change without the other instead of making a complete break with previous theories and methods. Until the principle of branch control is understood it is difficult to believe that two apparently injurious changes can have a beneficial result. Actual results of experiments are given in the new bulletin, and the intelligent cotton raiser who is sincerely desirous to better conditions is advised to send for the pamphlet. In the department's News Letters for March 11 and April 1 mention has already been made of the new system.

DEMAND FOR VEAL RAPIDLY INCREASING.

"The demand for veal has increased rapidly, and not only are the surplus dairy calves slaughtered but thousands of beef calves as well, until a calf will now sell for from $8 to $12 when only two to three months old."

This quotation from Farmer's Bulletin 588 of the department means that unless the farmer has unlimited cheap feeds, it is usually more profitable to market the dairy or dual-purpose calves than to attempt to raise them, even though some of them might make good steers. While many deplore this heavy slaughter of calves, and legislation against it has been urged, the consumer's demand must be met.

While the number of cattle has decreased, the demand for meat has naturally grown until not only have the exports nearly ceased, but the packers, that they may provide cheaper meat, are now buying many cattle that were formerly fed. The farmers who

formerly bought nearly finished cattle as feeders have been compelled to pay higher prices for such cattle or to take thinner animals.

The cattle-feeding business has changed greatly during recent years. Formerly steers from 4 to 6 years of age were fed in large numbers on commercial feed at yards near granaries or mills, or upon large farms where only the roughage was grown, and the cattle were kept on full feed for six months or longer. This method became too expensive, so feeding is now conducted upon farms as a means of marketing farm products by converting them into beef, while the manure produced is utilized as a by-product for maintaining fertility.

MANUFACTURERS FINED FOR SHIPPING ADULTERATED AND MISBRANDED INSECTICIDES IN INTERSTATE COMMERCE.

F. A. Thompson & Co., a corporation of Detroit, Mich., has been fined for three separate violations of the insecticide act because of shipments of adulterated and misbranded insecticides into other States. A fine of $50 was imposed on this company for shipping a quantity of "Thompson's Rose Nicotine," which was adulterated and misbranded, into California. The label stated that it contained 10 per cent of nicotine, but as examined by the Department of Agriculture's chemist, it contained only 8.47 per cent, which made its strength fall below the professed standard under which it was sold.

Another fine of $50 was imposed upon F. A. Thompson & Co. for the shipment into Ohio of an article called "To-Bak-Ine Liquid," which was adulterated and misbranded within the meaning of the insecticide act of 1910. It contained less than 45 per cent of nicotine, which it claimed to contain, and there was less than 1 pint of the article in the package labeled "One pint."

A third fine of $50 was imposed on this company for the shipment into Utah of an article called "To-Bak-Ine Sheep Dip," which was misbranded. This liquid was intended for a dipping fluid for the treatment of sheep and cattle scab. It contained less nicotine than was claimed to be present. The label was also misleading in claiming that when diluted according to the directions the product would give a dipping fluid of the same composition and strength required for a tobacco and sulphur dip and a tobacco dip without sulphur by the regulations of the Secretary of Agriculture governing sheep and cattle scab.

A shipment from Philadelphia, Pa., to Buffalo, N. Y., by Roberta K. Good of "Caustic potash tobacco fish oil soap No. 6" brought a fine to the shipper of $100 because the article was adulterated and misbranded. The article was recommended for the destruction of insects and parasites of all kinds that infest plants of any kind, was claimed to contain tobacco extract, 50 per cent of fish oil, and a large percentage of bone phosphate and ammonia, whereas it was not effective in destroying some insects that infest some plants, did not contain any tobacco extract, contained less fish oil than claimed, and did not contain a large percentage of bone phosphate and ammonia. Furthermore the product contained water, an inert substance, which does not prevent, destroy, repel, or mitigate insects, and the name and percentage amount of this ingredient were not stated on the label, nor in lieu thereof were the names and percentage amounts of each active ingredient and the total percentage of the inert ingredients stated on the label.

A decree of condemnation and forfeiture was entered against a consignment of six cases of "Nikoteen Aphis Punk" manufactured by the Nicotine Manufacturing Co., St. Louis, Mo., which had been seized under process of libel. The product was adulterated and misbranded in that it contained less nicotine and more inert ingredients than claimed on the label, and because the claims that it was effective for destroying insect life on plants and flowers and in killing caterpillars on shade and fruit trees were false and misleading.

Other convictions for violations of the Insecticide Act, according to recent notices of judgment issued by the United States Department of Agriculture, are as follows:

Article.	Shipper.	Charge.	Fine.
"Lime Sulphur Solution."	Peaslee-Gaulbert Co., Louisville, Ky.	Misbranding	$25 and costs.
"Chloro-Naptholeum Disinfectant."	West Disinfecting Co., New York, N. Y.	.....do.....	Do.
"Moore's Hog Remedy".	Robert W. Prescott, Kansas City, Mo.	.....do.....	$10 and costs.
"Car-Sul"	.....do.....	.....do.....	Do.
"Magnet Brand Poison Fly Paper."	L. W. Young, Massillon, Ohio, trading as American Fly Paper Co.	.....do.....	Do.
"Perfection Carman's Antipest."	Perfection Chemical Co., New York, N. Y.	.....do.....	$10.
"The Pioneer Quick Fly Exterminator."	J. L. Hazen and William Feldman, trading as the Pioneer Quick Fly Exterminator Co., Denver, Colo.	.....do.....	Plea of guilty and defendants discharged by court.
"Magic Fly Killer Plant"	Henry Heininger and Charles L. Baker, trading as the Henry Heininger Co., New York, N. Y.	Adulteration and misbranding.	Plea of guilty and court suspended sentence.
"Sanax Disinfecting Fluid."	Sharp & Dohme, Baltimore, Md.	Misbranding	50 cents.

RAILROADS FINED.

For violating the law that prohibits the confinement of live stock for more than 28 hours without unloading for feed, water, and rest, the following railroads have been fined a total sum of $3,000, and in some instances additional costs, according to recent announcements of the United States Department of Agriculture:

Railroad.	Total penalty.	Total costs.
Atchison, Topeka & Santa Fe Ry. Co. (12 cases)	$1,600.00	$259.60
Receivers of the Kansas City, Mexico & Orient Railway Co. (3 cases)	300.00	52.50
Chesapeake & Ohio Railway Co. (1 case)	100.00	18.50
Receivers of the St. Louis & San Francisco Railroad Co. (1 case)	100.00	16.70

VIOLATIONS OF QUARANTINE LAW.

Six cases were recently terminated against the St. Louis, Iron Mountain & Southern Railway Co. for violation of the live-stock quarantine law in each of which the company was fined $100 and costs. The St. Louis Southwestern Railway Co. was also fined $100 and costs in each of three cases for violations of the live-stock quarantine law.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., JULY 8, 1914 No. 48

TEN QUESTIONS AND ANSWERS ABOUT LIGHTNING RODS.

A correspondent writes: "Would you please publish in the News Letter, in concise and simple language, an article on lightning rods for farm buildings by some one in authority and fully capable to write on the subject?"

This request can not be fully answered in a short note in the News Letter, but the information given below seeks to answer in a definite and specific way the most important questions involved.

(1) Do lightning rods really protect buildings? *Answer:* Yes; but the rods must be of proper character, properly installed, and properly grounded in relatively moist earth. Periodical inspection and maintenance in good condition are indispensable to efficient protection.

(2) Do lightning rods on a building increase the danger of its being struck? *Answer:* Yes; but a properly rodded house may be struck several times without injury, whereas a single stroke without the protection afforded by the rods may cause disaster.

(3) Should lightning rods be put up with or without insulators? *Answer:* Without. Buildings with metal roofs or wherein any metal construction employed is properly connected to earth, are already partly provided with lightning protection. If rods are added to such buildings the rods should be put in direct metallic connection with the roof and other metal work about the building wherever practicable. All down spouts should be led into metal pipes going into the earth to give the proper earth connection, or the spouts should otherwise be well grounded by use of wires or cables. Insulators are entirely unnecessary and it is proper to have extended metal work in buildings, like heating and water pipes, all electrically connected together and all well grounded. This latter result is gained incidentally through connections made to water pipes, since the latter usually pass through the earth outside the building.

(4) Are gilded or otherwise expensive points of platinum or special metal or of fanciful construction necessary? *Answer.* No; not in the least. Sharp needlelike points are effective in dissipating small sustained electrical charges, but such electrical manifestations are perfectly harmless. The imagined superiority of such fanciful points is utterly valueless when the rod is struck by a real lightning flash. The useful qualities lightning rod points must possess are infusibility, mechanical strength and security of installation, and permanence and durability under prolonged exposure to the weather. Stout bluntly-pointed iron rods three-eighths or one-half inch in diameter rigidly and securely fastened so as to project 1½ or 2 feet above the structure to which they are attached satisfy all the requirements.

(5) What material is best for conductors or rods?

This question can not be answered fairly in a single statement.

Because of its availability and cheapness, as well as its electrical properties, iron is one of the best materials for rods. Iron, however, rusts and deteriorates under prolonged exposure to the weather. This is only partly overcome by galvanizing; hence galvanized-iron lightning rods should be of ample size (not less than one-quarter inch in diameter) carefully installed and subjected to systematic inspection and repair.

Two-strand cable galvanized-iron fence wire of substantial size of the same style as barbed wire but without the barbs furnishes a very good material for cheap iron lightning rods. The presence of the barbs constitutes a rather serious inconvenience in handling and installing such a conductor, and no material benefit is derived from their presence.

Copper is better than iron not only on account of its indestructibility but also because of its softness and pliability which make it easy to install. Scientists are not in accord in regard to the relative merits of the electrical properties of copper and iron, but in any case questions of cost, durability, and the like far outweigh minor differences in electrical properties.

Aluminum is a competitor for iron and copper for lightning rods. Its durability under exposure to weather is in its favor, but its fusibility makes it inferior to iron for points.

If low first cost is the controlling factor, galvanized-iron rods must be chosen, but subsequent inspections must be made and repairs may become necessary.

If higher first cost is not an obstacle, the choice should go to copper first or possibly aluminum.

(6) Should lightning conductors be made in the form of solid rods, flat bars or bands, stranded twisted cables, woven stranded ribbons, or hollow twisted cables? *Answer:* Any of the forms may properly be employed, or two or more forms may be employed in combination. Conductors should be put up in long continuous pieces as far as possible. Solid round wires one-quarter to one-half inch in diameter are best for this purpose. Conductors of a size larger than one-fourth inch, however, present difficulties in handling

and installation if the rods are solid. It then becomes better to use stranded cables and other similar forms. Long continuous lengths, ample cross section combined with flexibility and the ease of its installation over crooked courses render stranded cables, in general, better than any other form of conductor available.

Substantial iron points in combination with copper cables from five-sixteenths inch in diameter, for small farm buildings, to one-half inch in diameter for large important structures form one of the best possible systems of conductors for lightning-rod construction.

There is no good reason for purchasing other fanciful forms of cable at materially greater prices per pound than are asked for standard makes of cable of approximately the same cross section.

(7) Must lightning rods be connected to the earth? *Answer:* Yes; by all means, and most effectively. Just a few operators in the lightning rod profession have sought to impose upon the uninformed a system of ungrounded lightning rods. Such rods are a menace instead of a protection. It is impracticable to fully discuss here methods of making connections to earth. In general terms the conductor should be carried down into the earth and away from the building in a trench or other excavation, so as to reach and imbed the conductor itself or plates attached thereto into permanently moist earth. Connections with water pipes or other metal work itself connected to earth constitute good grounds.

(8) Are Government buildings provided with lightning rods? *Answer:* Yes; many of them, but naturally not every one.

(9) Does the Government use the material or the rods or the system of any particular agency? *Answer:* No; there is nothing mysterious or exceptional about lightning rods, the material of which they are composed, or their construction and installation. Suspicion may well be aroused as to the reliability of those making extravagant claims of superiority for their particular wares to the exclusion of others.

(10) What is the best arrangement of rods on a building? *Answer:* A building completely screened and surrounded by and inclosed beneath a cage or network of substantial metallic conductors, all properly interconnected and joined to the earth, would be most effectively protected from lightning discharges. For ordinary purposes a far simpler system is adequate. For example, good protection is afforded by a conductor running along the ridge of a building and extending to the earth, either at the middle of the sides or, preferably, at each of the four corners. Points should rise above any prominent features of the building, such as chimneys or, in the absence of these features, from the ridge of the roof at intervals of 25 feet or thereabouts. Fuller details of lightning rod installation are to be found in Farmers' Bulletin No. 367, a new edition of which is now in course of preparation.

HOW THE FARMER CAN USE THE FACILITIES OF THE U. S. DEPARTMENT OF AGRICULTURE.

PLANT INDUSTRY'S EXPERIMENTS TO AID FRUIT GROWERS, GARDENERS, AND SHIPPERS.

(*Continued from previous issue. See News Letter No. 30.*)

Office of Horticultural and Pomological Investigations.

PART I.

While the office of Foreign Seed and Plant Introduction concerns itself with plants introduced from abroad, as was described in the previous issue, the office of Horticultural and Pomological Investigations is mainly interested in the fruits, vegetables, and flowers now grown on a commercial scale in this country. The office maintains a voluminous correspondence with growers, shippers, and individuals throughout the country who desire information on any of the following topics:

Adaptability of fruit varieties to environment.

Methods of fruit culture.

Problems of orchard management.

Harvesting, handling, packing, shipping and storage of fruit.

Precooling of fruit and vegetables, and shipment under refrigeration or ventilation.

Chemical phases of fruit-ripening and the manufacture of concentrated fruit juices and by-products.

Identification and description of fruit varieties.

Nut culture (pecans, walnuts, chestnuts, almonds, hickories).

Improvement of citrus and deciduous fruits through bud selection, by crossing and by hybridizing.

Methods of growing, harvesting, handling, shipping, storing, and marketing of vegetable and truck crops or crops grown under glass.

Commercial potato culture and the improvement of seed potatoes by breeding and selection.

Growing, harvesting, curing, threshing, and by-products of peanuts and the improvement of commercial varieties.

Commercial production of flower and garden seed.

School garden work.

Landscape gardening and the use of trees, shrubs, and flowers on streets and lawns and in parks.

Improvement of flower varieties.

This office is working to determine the exact behavior of fruit varieties under different environments and the geographical range of successful culture of different kinds and varieties of fruit; it also furnishes information as to the cultural conditions and methods best suited to the growing of different fruits.

The improvement of handling and marketing conditions and the practical solution of the problems of transportation and storage with which growers and dealers are concerned comprise a large portion of the work of the office.

The object of the fruit harvesting, transportation, and storage work has been to determine the influence of geographical regions and local physiographical and cultural conditions on the keeping quality of fruit; the influence of methods of handling fruit in plantations, packing houses, storage houses, and in transportation; on the keeping quality of fruit in storage, in transit, and on the market. Studies of the relationship of the methods of handling fruits in preparing them for shipment to decay in transit and on the market have been and are being made with oranges and other citrus fruits in Florida; oranges, lemons, peaches, grapes, berries, and fresh figs in California; pears, prunes, cherries, and loganberries in Oregon; and red raspberries, peaches, and pears in Washington. The cause of decay and the methods of handling the fruit so that this decay can be largely prevented have been worked out by the office.

PRECOOLING, SHIPPING, AND STORAGE OF FRUITS.

Precooling investigations have been carried on with peaches in Georgia and Washington; red raspberries in Washington; prunes, cherries, loganberries, and pears in Oregon; oranges and grapes in California, and these investigations are now being extended to include oranges and pineapples in Florida and loganberries and blackberries in California.

The storage investigations have included work on apples, pears, peaches, and small fruits in the Eastern States; pomelos in Florida; oranges, lemons, apples, grapes, and fresh figs in California; and apples and pears in Oregon and Washington.

A constant effort is made to help the fruit interests of the different regions in which the work is being done. As a result of the orange and lemon handling work in California, losses estimated at over $1,000,000 annually were eliminated by improvement in the handling of these fruits in preparing them for shipment. The great improvement which has been made in recent years in Florida is a direct result of the orange handling and shipping investigations carried on in that State. The preliminary results of the Florida pomelo investigations have demonstrated the possibility of picking grapefruit early and storing for several months without refrigeration in order to extend the market season and equalize distribution.

The transportation and precooling work has brought about important changes in the method of handling and shipping the berry crop of the Pacific Coast and Northwestern States. Growers and shippers have been shown that careful attention to details in picking and packing, accompanied by thorough precooling, will enable them to distribute this very perishable fruit in good condition over a much wider territory than was formerly possible. One of the most noteworthy results of the investigations of this office is the extensive commercial application of the principles developed in the table-grape storage work in California. The system of packing table grapes in drum barrels with a filler of redwood sawdust and storing them for a later market, as devised by the bureau workers, has become a permanent and important factor in the California table-grape industry, resulting in a much wider distribution, longer marketing period, and the rejuvenation of a large portion of the industry.

The methods of handling apples and other fruits for cold storage, both in the field and in the warehouses, have been changed in different parts of the country to conform with the results of the cold-storage investigations. The office is investigating the keeping quality in cold storage of different varieties of apples and pears of the Northwest, as influenced by irrigation, grown on different types of soils, or picked at different stages of maturity. The results of the Bartlett pear precooling and storage investigations in the Rogue River Valley are being utilized by the industry in extending by five or six weeks their normal marketing season and in effecting a much wider and more profitable distribution.

The results of the preliminary pineapple handling and precooling investigations promise radical changes in the present method of putting this fruit on the market. At present, refrigeration is not utilized in shipping, but it is safe to say that as a result of the investigations in Florida, more careful methods of handling will be inculcated and refrigeration in transit will be very widely adopted, thus enabling growers to delay picking their fruit until it has reached greater maturity and superior quality.

In connection with the precooling investigations, a means of utilizing a mixture of ice and salt for precooling has been devised which greatly simplifies and makes more efficient the handling of the refrigerating devices. A number of such plants have been erected by various fruit growers' associations in different parts of the country, both for experimental and commercial purposes, and without doubt, the use of this simplified process will go far toward solving the problem of providing precooling facilities for fruits and vegetables. A comprehensive study is being made in cooperation with growers, shippers, and transportation lines of the temperatures of fruit while in transit in refrigerator cars. The data thus far obtained show that the type of refrigerator car in general use is not supplied with sufficient insulation to maintain uniform temperatures in all parts of the load during extremely warm or cold weather. There is no doubt but that the results of the work will be utilized in the building of better and more satisfactory refrigerator cars.

(*To be continued.*)

HAS YOUR WHEAT BEEN INFESTED WITH THE HESSIAN FLY?

"Has your wheat been infested by the Hessian fly this season?" is a question that the department is now asking farmers. The information is desired that there may be general cooperation between all concerned in reducing the devastations of the fly. There is every indication that the pest will be unusually troublesome to the crop this fall.

Every wheat grower in the country who suspects that his crop has been infested is requested to send his name to the department's Bureau of Entomology at Washington, D. C., with a request for a question blank. The questions to be answered are merely as to whether the wheat grower's crop was infested at certain seasons. The farmer will then be asked to forward some of the infested wheat plants for examination, postage to be paid by the Government. He will also be asked to give his name, address, and the nearest railway station.

The department is cooperating with various State experiment stations in this campaign against the

Hessian fly, and in some cases the infested straw will be sent by the farmer to local stations for examination. The wheat grower can learn just where his sample of straw is to be sent when he sends his name to the department, indicating his willingness to send the sample. The department encourages the sender not to be afraid to forward too much of the straw, even though it has to be sent by parcel post. The upper part of the straw need not be sent, but enough above the ground should be included to get the insect in what is known as the "flaxseed" stage, when the larva is incased in a hard, brown skin and somewhat resembles a flaxseed. The insects will remain for a considerable time in the "flaxseed" state during a drought and will only emerge after rains have moistened the soil. Dry weather in the late summer tends to keep the insect in that stage, which is a fact of special importance in the North, where the wheat must be sown early enough to enable the plants to stand the winter.

Probably no other insect causes more damage to the wheat crop in the United States than the Hessian fly, although there are certain years when the chinch bug exceeds the fly in its devastations. During the seasons when the fly is especially abundant hundreds of thousands of acres of wheat may be either totally destroyed or so badly injured as to reduce the yield 50 to 75 per cent. The monetary losses run far up into the millions.

A number of years ago there was in Kansas general cooperation between grain dealers, millers, and farmers to restrict the ravages of this dangerous insect. According to their own estimate, over a million dollars were saved by prompt action and thorough measures. This year the department hopes to secure general cooperation throughout the country in combating the pest. There are indications that its ravages may be severe. Already in Iowa and Oklahoma there have been threatening outbreaks of the insect.

Not only are Federal and State organizations of the Government cooperating in this campaign, but others, such as the National Millers' Federation, are working to secure better control over the Hessian fly. The individual wheat grower is asked to send his samples of infested straw before the middle of September, and sooner if possible, as after that the fly will have hatched and have entered into the wheat.

Late sowing of the seed and burning of the stubble when not seeded to grass or clover are the only measures known to date that are effective in controlling the Hessian fly—that is, for winter-wheat growing sections. In the spring-wheat sections late seeding will not apply. On the contrary, the earlier it is sown in the spring the less it seems to suffer from this pest.

A more detailed explanation of late sowing for winter wheat to avoid attack by the Hessian fly will be given in a subsequent article. The present article is merely an invitation to the wheat grower to help the department in its campaign. The post card to be forwarded the farmer contains enlarged illustrations of the fly in its adult and also its "flaxseed" state.

EASIER TO SHIP LIVE STOCK NOW.

New regulations governing the interstate movement of live stock became effective July 1, 1914. These changes are designed by the Department of Agriculture to facilitate the movement of live stock from quarantined areas or from public stockyards. The new regulations, which are known as B. A. I. (Bureau of Animal Industry) Order 210, superseding B. A. I Order 143, deal with the shipment of cattle from tick-infected areas, with the movement of swine from public stockyards and with the dipping of cattle and sheep for scabies.

Hereafter cattle that have been dipped once under State or Federal supervision may be shipped from an area quarantined for ticks to a market center where there are proper dipping facilities and the department maintains an inspector. After a second dipping there under his supervision the cattle may be sold for any purpose. Hitherto it has been necessary in times of drought for cattle owners in quarantined areas to slaughter their stock or sell it for slaughter for whatever it would bring. The resulting loss will, it is hoped, be done away with under the new regulation.

The provision permitting, under certain strict conditions, the transportation of hogs from public stockyards into interstate commerce has been made possible by the discovery by Government scientists of a serum which renders swine immune to hog cholera. Hitherto all stockyards have been considered as infected with this disease. Now, however, it is considered safe to permit the shipment of hogs which have been treated with the serum and which show no symptoms of suffering from any form of disease. As a result of this it is expected that thousands of lightweight hogs will be sent from the stockyards to the country for feeding and fattening and that the country's total production of pork will be greatly increased thereby.

The new regulations also withdraw all permission for the use of nicotine solutions, coal-tar creosote, and cresol preparations in the official dipping of cattle and sheep for scabies. This step has been made necessary by the difficulty experienced in keeping baths of this nature at a strength sufficient to eliminate all danger of disease without having them so strong as to be injurious to the animals themselves. The department therefore decided to insist upon a field test of the strength of all solutions used for dipping. A practical field test for this purpose is available in the case of the sulphid sulphur used in lime in sulphur baths for scabies, and for arsenious oxide in arsenical dips for cattle tick. Official dipping, therefore, will hereafter be confined to the lime-and-sulphur and arsenical baths.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., JULY 15, 1914 No. 49

The Division of Publications desires to call attention to the fact that an increasing number of requests for publications are being received daily in that division with incomplete addresses. Many correspondents fail to sign their names. Some do not give post-office address. Persons living in large cities fail to furnish the street address; and some give as the post-office address the name of an office that has been discontinued for years. The department is unable to handle correspondence unless the signature is legible and the post-office address given in full, with street number or rural route number, as the case may be. Correspondents are therefore earnestly requested to see that the complete address is given in all communications addressed to this department.

1914 CAMPAIGN AGAINST HOG CHOLERA.

Close Cooperation Between Federal and State Authorities in 15 States to Limit Devastations of This Dangerous Disease.

Under the recently passed act of Congress, which grants $500,000 to combat hog cholera, department agents will cooperate closely with the State authorities to prevent and eradicate the disease by the use of antihog-cholera serum and quarantine methods. Approximately $20,000 will be spent during the coming year in each experimental area selected. Thirteen of the counties, where the work is to be carried on, have been picked out, and in 12 of these the work has already been started. Two other counties are to be selected within a short time. The 12 counties selected for the present campaign, where the work has actually been begun, are as follows:

State.	County.
Idaho	Twin Falls district.
Illinois	Kankakee.
Indiana	Montgomery.
Iowa	Dallas.
Kansas	Marshall.
Kentucky	Henderson.
Michigan	Branch.
Minnesota	Renville.
Missouri	Pettis.
Nebraska	Gage and Johnson (part of each).
Ohio	Allen (and adjacent townships).
Tennessee	Maury.

The thirteenth county, where the work will soon be inaugurated, is Decatur County, in Georgia.

Appropriations will be spent in making surveys, using serum on hogs on infected and exposed farms, in sanitation and quarantine work, and in organizing farmers to cooperate with the State and Federal authorities. In addition funds will be used for the production by the department of antihog-cholera serum and for the inspection and proper control of serum prepared by private and other agencies.

Extensive demonstration and educational work also will be undertaken in territory outside of experimental areas to acquaint farmers with the results of the experiments and to supply them with information as to the methods of controlling the disease.

METHOD OF PROCEDURE.

The method of procedure in the actual areas where the demonstration work will be conducted is as follows:

1. *Education.*—Assemblages of farmers to be arranged in each school district of each experimental area. The objects sought and methods of procedure will be explained and full information given regarding the nature, cause, and prevention of hog cholera. Further educational work to be carried on through the distribution of publications and through personal interviews with farmers.

2. *Organization of farmers.*—This organization will be made up as follows:

A leader for each township and nine associates will be selected. Each associate will have assigned to him an area of about four sections for survey. The men in this organization will serve as volunteers without salary, and they will keep the United States inspector in charge advised concerning the conditions in the county and will also aid in securing the required statistics of the hog industry.

3. *Survey.*—A complete survey will be made to determine the number of hogs raised and the number lost from hog cholera prior to beginning the work and during each year thereafter during the life of the project.

4. *Sanitation and quarantine.*—This will comprise the regulation of shipment of hogs into and out of the experimental area, the regulation of shipments within the area, the quarantine of infected places, destruction of dead animals, cleaning and disinfection of railroad chutes, pens, and loading places, etc.

5. *Immunization and treatment with antihog-cholera serum.*—Serum to be applied to hogs on infected farms and on exposed farms by the United States inspectors in such manner as they may deem necessary.

6. *Serum production.*—All antihog-cholera serum required is to be produced and supplied by the Bureau of Animal Industry, provided that in the event of the

inability of that bureau to produce sufficient serum the several States will supply the deficiency in so far as possible without cost to the United States Department of Agriculture.

ORGANIZATION AND COOPERATION.

1. *State organization.*—The State agricultural college or other State agencies will place in each experimental area at least one qualified man who, with the cooperation of the United States inspectors and county advisers, will carry out the necessary educational work, organization of farmers, and make an accurate survey of the area.

The live-stock sanitary board or other proper State authorities will place in each area at least one qualified deputy, who will enforce, in so far as State laws will permit, such sanitary and quarantine measures as may be deemed necessary by the United States Department of Agriculture.

2. *Volunteer organization.*—To be composed of farmers residing in the experimental area and to be selected jointly by the United States field inspectors in charge and representatives of the State college.

UNITED STATES DEPARTMENT OF AGRICULTURE ORGANIZATION.

1. *Field forces.*—One supervising field inspector. The functions of this officer will be to visit the various experimental areas, to advise with the United States inspectors in charge of field work regarding the methods of work, thus giving to each inspector the benefit of observations made in other areas, and thereby increasing efficiency.

2. A force located in each experimental area will be maintained as an independent unit reporting directly to the Chief of the Bureau of Animal Industry. The force to be maintained in each area will consist of one inspector in charge, one or more assistant inspectors, and one clerk. The size of the organization in each area will be governed by the necessities of the case and the funds available.

Laboratory force.—One inspector in charge, with the necessary scientific assistants, clerks, and laborers, to prepare sufficient antihog-cholera serum to supply the needs of the various field inspectors.

COOPERATION AND ORGANIZATION.

The United States field inspector in charge in each experimental area is to be recognized as the local leader of the project. This official, by conference with the local State representatives, will arrange for the details of carrying out educational work, quarantine and sanitation, and other activities. State officers shall at all times be furnished with full information concerning the general progress of the work, and the United States field inspector in charge shall likewise be advised concerning the general progress of the work and results of work carried on by the local State officers.

The salaries and expenses of employees of the United States Department of Agriculture will be borne entirely by that department, and similar expenses of State officers will be paid by State or local agencies.

CONTRACTS OR AGREEMENTS.

No contract or agreement in connection with this work will be regarded as binding upon either the State or the Department of Agriculture unless made in accordance with the principles laid down under the heading "ORGANIZATION AND COOPERATION."

Regulation for Preparation, Sale, and Importation of Serums and Similar Products for Use with Domestic Animals.

The department under the appropriation act for the fiscal year ending June 30, 1914, was given power to regulate the preparation, sale, and importation of viruses, serums, toxins, and similar products intended for the treatment of domestic animals. The hog-cholera act provides that not less than $50,000 of the total may be used in this work.

The purpose of the work is to protect farmers from serums that are either dangerous, under strength, or ineffective.

The general method of procedure will be to inspect establishments which do an interstate business in serums, toxins, etc., and to issue a license to those that comply with the regulations. In addition the department will take samples and test serums in interstate commerce and recommend revocation of licenses or prosecutions where the facts warrant. In the case of imported serums, admission will be refused any serum which is found to be dangerous or spurious.

A NEW USE FOR WEATHER REPORTS.

In the public mind the Weather Bureau is engaged only in forecasting day-to-day weather changes, storms, cold waves, frost, etc., whereas to business men these forecasts are but one phase of its work. The Weather Bureau has been for some time past disseminating from day to day reports of weather conditions in the cotton region, the corn and wheat belts, in the citrus regions of California and Florida, in the rice and sugar regions of Texas and Louisiana, and more recently, in fact quite recently, it has been collecting and disseminating reports of weather, temperature, and rainfall in the semiarid regions of the Southwest for the direct benefit of the cattle herders and others interested in the cattle industry in Kansas, Oklahoma, eastern Colorado, western Texas, and eastern New Mexico.

The publication of these data is not only of immediate value to cattlemen, but also to bankers and others interested in the handling of commercial paper in connection with the cattle industry, of which several millions of dollars' worth is placed each year. The banker has to know conditions on the range in order to judiciously make loans, increase or decrease them, extend time, and determine the rate of interest or discount on the same. The cattlemen, on the other hand, from a closer knowledge of stock and grazing conditions over the whole cattle country, are in a better position to make advantageous arrangements for negotiating loans on stock security. For example, if on account of a prolonged heat spell and lack of rains the range is poor and the stock below average condition, a relatively high rate of interest would be expected. But if, on the contrary, there had been beneficial rains and seasonable temperatures and in consequence the condition of the stock good, the stockman would expect to get his loan at a moderate rate. Again, it might happen that local grazing conditions were extremely bad, but that the Bulletin showed conditions in other parts of the range to be good, the cattleman might reasonably expect to make arrangements for feeding a part if not all of his stock without going to the expense and delay of a shipment of feed by rail from some distant section. The stockmen who will study the bulletins regularly and learn how to apply the information to their business will soon be able to determine how they can dispose of their cattle to the best advantage. If conditions, for example, were unfavorable in other parts of the range, cattle could be disposed of at a price above the average; if those conditions, however, were good, the stock raiser would probably hold his cattle for a better price, and by knowing the range conditions he would be in a position to know whether or not he could hold the cattle to advantage.

The Bulletin is issued at Amarillo, Tex., on each weekday throughout the season, from April 15 to October 31, and copies will be mailed to any individuals desiring to use the information therein. Requests for copies should be addressed "Official in Charge, Weather Bureau Office, Amarillo, Tex."

LEGEND AND SERIAL NUMBER ON INSECTICIDES AND FUNGICIDES ABOLISHED.

Following their action prohibiting the use of a serial number and holding the guaranty legend on foods and drugs under the food and drugs act to be deceptive, the Secretaries of the Treasury, Agriculture, and Commerce on June 30 signed an amendment to the regulations under the insecticide act abolishing the use of serial numbers on insecticides and fungicides. The amended regulation also holds that the use of the legend "Guaranteed by (name of guarantor) under the insecticide act of 1910" on the labeling of insecticides and fungicides or similar legends is misleading and deceptive in that the public is induced by such legend and serial number to believe that the articles to which they relate have been examined and approved by the Government.

The regulations therefore provide that the use of the guaranty legend or any similar legend on labels or packages of insecticides or fungicides, under which are included all substances for destroying or preventing insects or fungi affecting plants and animals, should be discontinued.

The new regulation is to become effective on and after May 1, 1916. In the case of products packed and labeled in accordance with the insecticide act and in conformance with the rules and regulations prior to May 1, 1916, the amendment will become effective on and after November 1, 1916. Manufacturers, however, need not wait until May 1, 1916, to change their labels, but are free to make them conform to the new regulations at any time.

As in the case of the ruling on foods and drugs, the amended regulation as to insecticides and fungicides provides that where a wholesaler, manufacturer, or jobber wishes to guarantee his goods so as to protect the dealer from prosecution, he may incorporate this guaranty in or attach it to the bill of sale, invoice, bill of lading, or other schedule. As the protection of the dealer and not a guaranty to the consumer was the original purpose of the legend, the new method fully protects the dealer without misleading the consumer.

In the meantime, the department notifies the public that the presence of a serial number or guaranty legend on foods and drugs or on insecticides and fungicides in no way implies that the Government has tested or approved such articles or guarantees them to be in compliance with the Federal law.

LIVE-STOCK PRICES.

The level of prices paid to producers of the United States for meat animals decreased 1 per cent during the month from May 15 to June 15. This compares with an increase of 1.6 per cent in the price level from May 15 to June 15 last year, a decrease of 2 per cent two years ago, a decrease of 1.7 per cent three years ago, and a decrease of 1.1 per cent four years ago, from May 15 to June 15.

In the six months from December 15 to June 15 the level of prices for meat animals advanced 5.4 per cent. This compares with an advance of 12 per cent during like period a year ago, an advance of 16.8 per cent two years ago, and decline of 12.3 per cent three years ago, from December 15 to June 15.

On June 15 the average (weighted) price of meat animals—hogs, cattle, sheep, and chickens—was $7.22 per 100 pounds, compared with $7.19 on June 15 a year ago, $6.27 two years ago, $5.45 three years ago, and $7.29 four years ago.

Average prices to producers in the United States for various products are given below:

	June 15, 1914.	May 15, 1914.	June 15, 1913.	June 15, 1912.
Horses, each	$136.00	$139.00	$146.00	$145.00
Milch cows, each	59.82	59.85	55.20	45.84
Hogs, 100 pounds	7.43	7.60	7.61	6.65
Beef cattle, 100 pounds	6.32	6.33	6.02	5.23
Veal calves, 100 pounds	7.69	7.59	7.53	6.33
Sheep, 100 pounds	4.70	4.87	4.84	4.52
Lambs, 100 pounds	6.47	6.49	6.36	6.02
Wool, per pound	.184	.172	.156	.187

SPINNING TESTS OF UPLAND LONG-STAPLE COTTONS.

That strains of cotton are being produced to-day by the best breeders in the Carolinas which are fully equal to the average Deltas of the same length, in almost every respect has been demonstrated to the satisfaction of experts in the department.

Since the ravages of the boll weevil had practically put an end to the production of long-staple cottons in the region which had formerly been the principal source of their supply, the spinners besought the department about three years ago to assist in an effort to maintain the staple industry in the Mississippi Delta.

It was already known by the department that excellent upland cottons of 1¼-inch staple could be produced on the Atlantic slope, but the spinners maintained that the Carolina Upland had been unsatisfactory to use.

Investigation indicated that this was because of a lack of understanding of the proper methods to be used with the seed and at the gin. Some of the best Carolina breeders, however, were developing high-grade strains of the Columbia variety and were finding ready sale at satisfactory prices for their products, to the few spinners who understood the true character and value of these cottons.

It devolved upon the department, therefore, to determine as accurately as possible how the best strains of the new varieties of upland staple and Delta blended cottons actually compared in spinning value with Delta cottons. Accordingly, a series of spinning tests was made in cooperation with the New Bedford Textile School, New Bedford, Mass., on 5 bales, representing four different varieties or strains grown in three entirely distinct regions of production.

These tests showed that careful breeders in the Carolinas are producing cotton fully equal in almost every respect to the average Deltas of the same length. Contrary to the prevailing opinion, they showed that several strains now grown in commercial quantities in the Southeast are less "wasty" than average Deltas, although they are not so strong. These varietes have the added advantage of being earlier, of bearing larger bolls, and of being more prolific than Delta types.

Full descriptions of these tests, with tables showing variations in grade and staple, invisible loss, relation of grade to waste, comparisons at the comber, value of waste differences, tests of breaking strength, etc., are presented in bulletin No. 121, recently issued by the department.

Since the 1913 crop in the Delta suffered little from the weevil, and since many spinners still retain a prejudice against upland staples, a serious situation now confronts the growers of these cottons. For this reason all growers and spinners should be interested in the results of these tests as set forth in this bulletin, which may be obtained free, as long as the supply lasts, by application to the department.

SOUR SKIM MILK FOR CALVES.

That in summer time calves do as well on sour skim milk as they do on sweet will be interesting news to many farmers who have hitherto been kept from raising calves by the expense of keeping the milk sweet in hot weather. This expense experiments carried out by the department indicate to be quite unnecessary. The calves will make as rapid gains on sour skim milk. In winter, it is true, this is not quite so satisfactory. It chills the calves and some of them drink it with great reluctance. Very young calves have even been known to refuse it altogether. On the other hand, of course, it is much easier to keep the milk sweet in winter.

In calling the attention of farmers to these facts, however, the department at the same time emphasizes an important precaution. Unless the milk is produced and kept under cleanly conditions, it may become contaminated with disease-producing bacteria. Farmers should therefore allow the milk to sour quickly and then feed it without delay.

In the course of these experiments sour skim milk was fed to 22 calves, Holsteins, Jerseys, and Guernseys, at different seasons of the year. In no case did it cause digestive disturbances even when the change from sweet to sour milk was made abruptly when the calves were only a few days old. Moreover, no evil results followed the alternate use of sweet and sour. It seems, therefore, that the common idea that sour milk leads to scours is quite unfounded.

The calves, it was found, did not like the sour milk as well as the sweet, but in the majority of cases soon became accustomed to it. The aversion, however, increased when the milk was fed them at a low temperature.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., JULY 22, 1914 No. 50

HOW THE FARMER CAN USE THE FACILITIES OF THE U. S. DEPARTMENT OF AGRICULTURE.

(Continued from previous issue.)

PLANT INDUSTRY'S EXPERIMENTS TO AID FRUIT GROWERS, GARDENERS, AND SHIPPERS.

Office of Horticultural and Pomological Investigations.

PART II.

VINIFERA GRAPE EXPERIMENTS.

In addition to the work in connection with fruits, their precooling, storage, and shipment, carried on by this office and described in a prior issue, the Office of Pomological Investigations is also carrying on experiments with the vinifera grapes of California, from which raisins and wine are made, in order to determine the adaptability of resistant grape stocks and vinifera varieties to different soils and climatic conditions and the congeniality of grape varieties to different resistant stocks. The native grapes of the South, the possibilities of which are only slightly realized at the present time, are being studied to ascertain the best methods of planting, cultivating, training, pruning, and utilizing the product of the Rotundifolia type of grape, generally known as the Scuppernong. An effort is being made to establish a Muscadine grape industry in a section where profitable fruits are less plentiful than in other parts of the United States. The reestablishment in New Jersey of the culture of the American native grapes, the determination of the most profitable varieties, best methods of training, pruning, cultivating, etc., and the development of the unfermented grape-juice industry of the United States also form part of the investigational work of this office.

In cooperation with the Bureau of Chemistry the best methods of preparing fruit juices from apples, pineapples, and other fruits have been determined. An important feature of the work has been the application of refrigeration to the concentration of fruit juices. It has been found that much of the water content of the juices can be removed by freezing with little or no impairment of delicate flavors such as frequently follows heating. The ripening of bananas, processing of Japanese persimmons, and drying of bananas, pineapples, and Japanese persimmons are also being studied.

Much fruit is sent in to the office by fruit growers and others for determination of the varieties and for detailed varietal descriptions. The standardization and simplification of pomological nomenclature with a view to determining the proper varietal names and synonyms are among the projects of the office.

PECAN AND OTHER NUTS.

Special attention has been given to the pecan, as this is the most important of our native nuts and as during recent years there has been great impetus in the planting of pecan orchards of budded trees of choice varieties, including much speculative planting by promoters. The adaptability of different varieties to different sections of the country has been well determined and problems regarding the interrelation of varieties, their productiveness under orchard conditions, resistance to disease, culture under different climatic and soil conditions, etc., have received attention. Impending difficulties due to confusion in nomenclature have been largely eliminated. Chestnuts, hickories, and other native nuts have received attention, with a view to determining their adaptability for various sections of the country, and the Persian walnut and almond industries have been investigated more or less fully.

CITRUS FRUIT WORK.

The improvement of citrus fruits, especially oranges, lemons, and pomelos, through bud selection and breeding, is now being carried on in California, and the production of improved strains and types resulting from this work will afford the growers a basis for the commercial production of improved stock for future plantations or for replacing undesirable plantations. The work with deciduous fruits has thus far been confined to peaches and apples, and aims to determine reliable and valuable parent trees and other plants from which to propagate uniform and improved strains in order to secure increased yields and fruit of better quality.

VEGETABLE AND TRUCK CROPS.

The horticultural staff of the office have devoted much time and attention to the cultivation of the various vegetable and truck crops, studying them from the standpoint of their adaptability to different regions, the proper selection of varieties, the methods of planting, cultivating, harvesting, and marketing, the standardization of commercial varieties, and improvement in quality of the seeds. Among the vegetables with which experiments have been conducted are tomatoes, beans, beets, peas, cabbage, cucumbers, asparagus, spinach, sweet corn, muskmelons, watermelons, horse-radish, and water cress, special attention being given to celery, onions, lettuce, and sweet and Irish potatoes. Gardeners may obtain whatever information is available regarding these vegetables by correspondence with this office.

The handling, precooling, and shipping investigations of the office, formerly confined to fruits, have this year been extended to include a study of the behavior of lettuce, celery, and tomatoes shipped from Florida to northern markets, and of the effect of careful methods of handling and of precooling on the percentage of decay developing in transit. The principles developed in the work with fruits have proved to be just as important when applied to these perishable truck crops. The present methods of storing celery under commercial conditions have been investigated, and it has been proved that by the use of smaller, ventilated crates celery can be held in cold storage in good condition for three or four weeks longer than under the present method of packing.

By a combination of tuber unit and hill selection work a method has been devised by which unproductive hills of potatoes can be eliminated, the type of a variety maintained, and the aggregate yield decidedly increased. Hybrids have been made between the best producing and most disease resistant American and European varieties for the purpose of producing better sorts for the different potato sections. The improvement of cultural conditions, seeds, the methods of dissemination and storage conditions, and the development of means for economically utilizing surplus potato products are among the most important lines of potato investigations now being carried on.

A method of utilizing the sweet potato as a stock food has been developed, and at present an attempt is being made to solve the storage problems of the sweet-potato growers.

The peanut investigations have aided in the improvement of varieties by systematic seed selection, in the use of the peanut as a forage crop in connection with the animal industry in the South Atlantic States, in the development of the peanut-butter and peanut-oil industries, and have demonstrated the suitability of the latter product as a substitute for olive oil.

The work of standardizing the vegetable seeds which are used on a large scale by market gardeners and truck farmers has been undertaken. Trial grounds are maintained for testing the novelties introduced by the trade each year. Attention is given to the distribution of flower and vegetable seeds suitable for use by children either in home or school gardens.

TREES, SHRUBS, AND FLOWERS.

The general landscape gardening work aims to develop an interest in the beautification of the farmstead and embraces the preparation of plans for the beautification of grounds, together with the suggestion of trees, shrubs, or flowers suitable for planting on streets, parks, and lawns.

Among the floricultural work which has been of practical value to the florists and gardeners of the country is the demonstration of a method of growing Bermuda lily bulbs from seed and of the relative value of blind and flowering wood for rose cuttings as well as the value of plants which produce abundant bloom as parent stock from which to take cuttings. The theory of the stability of the first generation hybrid and its trueness to one parent type has been demonstrated on a commercial scale with carnations. Florists are invited to send inquiries regarding their problems.

Closely allied varieties among the cultivated fruits and vegetables may differ widely in quality or in adaptability to particular soils or climates. It is very important, therefore, that these varieties be defined very clearly in order that the farmer, fruit grower, or gardener may know that he is receiving from the nurseryman the exact varieties which he has ordered.

STANDARDIZING PRODUCTS.

It is the aim of the department to standardize commercial products. In doing this the varieties are accurately described and samples (or in the case of fruits, paintings, and wax models) are kept with great care to prevent deterioration, so that they may serve as a basis for comparison and grading. This is as important as the establishment of trade-marks.

CANNING CORN ON AND OFF THE COB: A SEASONABLE AND ECONOMICAL RECIPE.

The following seasonable recipes for the canning of corn have proven both practical and economical for the housewife. The recipes have been worked out in the department's canning kitchen and the products tested for nearly two years.

These recipes have been used in connection with the five different types of canning devices and the corn has been put up in all types of containers, such as glass top, screw top, suction top, and tin cans. The method employed is the cold-pack method, the same as is now being used in the best commercial factories of the world, instead of requiring the laborious and tedious method of fractional sterilization of an hour each day for three consecutive days and the lifting of the products in and out of the canning devices three times. The method now employed contemplates but one sterilization and turns out the product in better shape, with better color, texture, and flavor than the fractional sterilization method. By following these recipes and method the family can have corn, either on or off the cob, throughout the year at a very reasonable expense of time, energy, and money.

RECIPES.

CORN OFF THE COB.

Select sweet corn ears of uniform size and proper ripeness. If too ripe the corn will color while processing. (Processing is the canning term for sterilization or cooking.) If not ripe enough much of the food value is lost in cutting the corn from the cob. Use either glass jars or tin cans. For market purposes and greater safety in transportation use tin cans.

Remove husk, silk, shank, tips, and injured or defective places. Blanch corn in boiling water or steam chest for from 5 to 10 minutes. The time depends upon the stage of ripeness, size of ears, and degree of freshness. Remove the ears and plunge quickly in cold water.

Cut the corn from the cob with a sharp, thin-bladed knife. Pack well in glass jar or tin can; add hot water and a level teaspoon of salt to the quart or No. 3 can. Place rubber and glass-jar top in place, not tight. If using tin, solder cap in place and fill vent hole, or seal completely. Process the corn from 180 to 240 minutes in the homemade or hot-water commercial bath outfits; for 1½ hours in the water-seal outfits; for 60 minutes when using from 5 to 10 pounds of steam pressure, with the steam-pressure canning devices, and 40 minutes when using the aluminum steam-pressure cooker outfit. After processing remove the jars, tighten covers, invert to test the joints, and cool.

If using tin, inspect the soldered end caps for pinhole leaks. Repair all leaks, allow to stand for 24 hours. If cans are still bulging at ends at the end of this time, one of two things is true—the pack is too full or some live spores are still left in the can. If the latter, replace in sterilizer and process the second time from 30 minutes to 1 hour.

CANNING SWEET CORN ON THE COB.

Blanch in boiling water 5 to 10 minutes, according to ripeness, size, and freshness; plunge quickly in cold water. Pack, alternating butts and tips; add just a little boiling water and one level teaspoonful of salt to each quart. Place rubber and top and partially tighten. (Cap and tip tins.) Process, 180 to 240 minutes in hot-water bath; 1½ hours water-seal outfit; 60 minutes under 5 or more pounds of steam; 40 minutes in aluminum pressure cooker. Remove jars, tighten covers, invert, and cool. (Heat up for table use in steamer, not in water. If corn seems flat or waterlogged, it has been overcooked or allowed to stand in too much water.)

Use one or two quart glass jars if not needed for other products. Quart jars will hold two ears, two-quart jars will hold from three to five ears, according to size of ear. Do not can large ears. Half-gallon or gallon tin cans with large openings should be used in the canning of ear corn when idle glass jars are not available. Gallon tin cans will hold from 6 to 12 ears. They should be graded to uniform size.

In high altitudes, 4,000 feet and over, it will be necessary to increase the time requirements in the canning of sweet corn about 25 per cent, if water boils at about 202° Fahrenheit and even less.

In the average home a large number of glass jars are idle every year. The use of these idle jars is recommended, but if none are available the most economical and practical containers are the half-gallon and the gallon tin can.

The gallon tin cans, including soldered-hemmed caps will cost about 6 cents apiece, but they will hold 6 to 12 ears of corn, which is enough for a good-sized family. If the corn is removed from can and steamed for a few minutes, it can not be distinguished from the sweet corn removed from the husk in midsummer. The corn can be heated in the container before opening to serve.

An ear of sweet corn on the average dining car and hotel a la carte service costs 25 cents. Considering this, canning corn on the cob for the market might prove a very profitable investment for a thrifty housekeeper and bring to her considerable pin money.

One advantage of sweet corn canned on the cob over other canned corn is that all the best food values are kept with the cob. In cutting corn off the germ quality of the kernel, which keeps up its standard, is usually lost. This germ quality is the part of the corn that is sought by rats and mice when they look for food in the corn bin and is the most vital part. Much of the corn is also rendered mushy when it is cut from the cob.

In regard to the container for corn on the cob it might be mentioned that for advertising and exhibition purposes, glass is much more satisfactory than the tin can, but if corn on the cob were to be put up in large quantities as a business venture, the glass would not be practical, being too expensive, but the tin cans would prove quite satisfactory.

AMENDMENTS TO THE BIRD LAWS.

Amendments to the regulations for the protection of migratory birds have been proposed by the United States Department of Agriculture to take effect as soon as the three months' notice required by law has expired. This will be on October 1, 1914. In the meantime, copies of the regulations can be obtained from the Biological Survey in the department.

The effect of one of these changes is to permit, on the Missouri and the upper waters of the Mississippi, the shooting of all migratory game birds for which there is an open season from October 1, 1914, to January 1, 1915. After the latter date the prohibition will be in force again.

Other amendments deal principally with the closed season for water fowl in various localities.

The new regulations provide for a closed season in Zone No. 1 for all water fowl from December 16 to September 1 next following. Exceptions to this rule are as follows:

In Massachusetts and Rhode Island the closed season shall be between January 1 and October 1.

In Connecticut, New York, Pennsylvania, Idaho, Oregon, and Washington, the closed season shall be between January 16 and October 1.

In New Jersey, the closed season shall be between February 1 and November 1.

In Minnesota, North Dakota, South Dakota, and Wisconsin, the closed season shall be between December 1 and September 7.

For Zone No. 2 the closed season is between January 16 and October 1 with the following exceptions:

In Delaware, Maryland, District of Columbia, Virginia, North Carolina, Alabama, Mississippi, and Louisiana, the closed season shall be between February 1 and November 1.

In Florida, Georgia, and South Carolina, the closed season shall be between February 16 and November 20.

In Kansas, Missouri, and Oklahoma, the closed season shall be between February 1 and September 15.

In Texas, Arizona, and California, the closed season shall be between February 1 and October 15.

WHAT MAKES MILK AND BUTTER YELLOW.

That the rich yellow color demanded by the public in dairy products is primarily due to the character of the cow's feed is demonstrated by recent experiments carried on by the department in cooperation with the Missouri State Experiment Station. For some years dairy experts have been studying this question. Their conclusion is that, although to some extent a breed characteristic, the intensity of this yellow color may, within certain limits, be increased or diminished at will by changing the animal's rations.

Chemical tests show that the yellow pigment in milk consists of several well-known pigments found in green plants. Of these the principal one is carotin, so called because it constitutes a large part of the coloring matter of carrots. The other yellow pigments in the milk are known as xanthophylls. These are found in a number of plants including grass but are especially abundant in yellow autumn leaves.

These pigments pass directly from the feed into the milk. This explains the well-known fact that fresh,

green grass and carrots increase the yellowness of butter, the only standard by which the average person judges its richness. On the other hand, a large proportion of these pigments is deposited in the body fat and elsewhere in the cow. When the ration is changed to one containing fewer carotin and xanthophyll constituents, this hoarded store is gradually drawn upon and in consequence the yellowness of the milk does not diminish so rapidly as it otherwise would. This yellowness increases, however, the instant the necessary plant pigments are restored to the ration.

Green grass is probably richer in carotin than any other dairy feed. Cows fed on it will therefore produce the highest colored butter. Green corn, in which xanthophylls constitute the chief pigment, will also produce a highly-colored product. On the other hand, a ration of bleached clover hay and yellow corn is practically devoid of yellow pigments and the milk from cows fed upon it will gradually lose its color. It is, of course, indisputably true that the breed does influence the color of the milk fat; but vary the ration and there will be a corresponding variation in the color of the milk fat in each breed.

In cows of the Jersey and Guernsey breeds the body fat is frequently of such a deep yellow color that some butchers and consumers look with disfavor upon beef from these breeds. For this prejudice there is absolutely no justification. The yellowness of the fat springs from the same causes as the yellowness of the milk fat, and there is no reason for objecting in one case to the very thing that is prized in the other

RECENT DEPARTMENTAL PUBLICATIONS.

No publications are sold by the Department of Agriculture; therefore do not send money to this office.

Copies of publications listed herein will be sent free upon application to the Editor and Chief, Division of Publications, Department of Agriculture, Washington, D. C., as long as the supply lasts.

When this department's supply is exhausted publications can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., by purchase only, and at the prices noted herein.

Send all remittances to the Superintendent of Documents direct. His office is not a part of the Department of Agriculture.

Department Bulletins.

New Facts Concerning the White-Pine Blister Rust. Pp. 8. (Department Bulletin 116.) Price, 5 cents.

This paper contains additional information concerning the white-pine blister rust that was collected during the season of 1913. It is of interest to foresters, tree experts, nurserymen, and owners of ornamental and forest plantations of 5-leaved pines.

Spinning Tests of Upland Long-Staple Cottons. Pp. 20. (Department Bulletin 121.) Price, 5 cents.

This bulletin is a report of tests of Upland long-staple cotton as compared with Deltas of the 1912 crop. Of interest to spinners and growers of Upland cotton on the Atlantic slope.

Farmers' Bulletins.

Collection and Preservation of Plant Material for Use in the Study of Agriculture. 24 pages, 16 illustrations. (Farmers' Bulletin 586.)

This bulletin is designed for the use of rural teachers in all parts of the United States.

Economic Value of North American Skunks. 22 pages, 10 illustrations. (Farmers' Bulletin 587.)

This bulletin discusses the value of skunks to agriculture as destroyers of rodents and injurious insects, their value as fur bearers, and the possibilities of raising them for their fur.

Economical Cattle Feeding in the Corn Belt. 19 pages, 6 illustrations. (Farmers' Bulletin 588.)

This bulletin is intended to promote cattle feeding on moderate-sized farms; it is suitable for distribution throughout the corn belt.

Stock-Watering Places on Western Grazing Lands. 27 pages, 3 illustrations. (Farmers' Bulletin 592.)

This bulletin gives suggestions for the development and improvement of stock-watering places; it deals more especially with conditions found within the National Forests. It is intended for distribution throughout the range country.

How to Use Farm Credit. 14 pages. (Farmers' Bulletin 593.)

This bulletin is intended to help farmers with the business side of their enterprises, and is suitable for all sections of the country.

Shipping Eggs by Parcel Post. 20 pages, 6 illustrations. (Farmers' Bulletin 594.)

This bulletin presents conclusions from recent investigations made in cooperation with the Post Office Department. It contains matter which at the present time is arousing considerable public interest and furnishes information as to the use of the parcel post as a channel of communication between producer and consumer, which will prove of value to every postmaster as well as to patrons of their offices.

Arsenate of Lead as an Insecticide Against the Tobacco Hornworms in the Dark-Tobacco District. 8 pages, 1 illustration. (Farmers' Bulletin 595.)

This bulletin is intended to assist the tobacco growers of Kentucky and Tennessee and the adjoining States in combating a troublesome pest.

The Culture of Winter Wheat in the Eastern United States. 12 pages, 2 illustrations. (Farmers' Bulletin 596.)

This bulletin gives directions for growing winter wheat in the eastern half of the United States, including small portions of eastern Nebraska, Kansas, Oklahoma, and Texas.

A New System of Cotton Culture and Its Application. 12 pages, 2 illustrations. (Farmers' Bulletin 601.)

Separates.

Bringing Applied Entomology to the Farmer. Pp. 75–92, pls. 6, figs. 4. (Separate 616, Yearbook 1913.) Price, 5 cents.

Factors of Efficiency in Farming. Pp. 93–108. (Separate 617, Yearbook 1913.) Price, 5 cents.

Promising New Fruits. Pp. 109–124, pls. 8. (Separate 618, Yearbook 1913.) Price, 15 cents.

The American Thrushes Valuable Bird Neighbors. Pp. 135–142, pls. 2. (Separate 620, Yearbook 1913.) Price, 10 cents.

What the Department of Agriculture is Doing for the Housekeeper. Pp. 143–162. (Separate 621, Yearbook 1913.) Price, 5 cents.

Practical Tree Surgery. Pp. 163–190, pls. 7. (Separate 622, Yearbook 1913.) Price, 10 cents.

Supplementing Our Meat Supply with Fish. Pp. 191–206. (Separates 623, Yearbook 1913.) Price, 5 cents.

Economic Waste From Soil Erosion. Pp. 202–220, pls. 6. (Separate 624, Yearbook 1913.) Price, 5 cents.

The Grain Sorghums: Immigrant Crops that Have Made Good. Pp. 221–238, pls. 7, figs. 8. (Separate 625, Yearbook 1913.) Price, 10 cents.

The Organization of Rural Interests. Pp. 239–258, figs. 4. (Separate 626, Yearbook 1913.) Price, 5 cents.

The Production of Beef in the South. Pp. 259–282. pls. 4. (Separate 627, Yearbook 1913.) Price, 10 cents.

Hemp. Pp. 283–346, pls. 7, figs. 5. (Separate 628, Yearbook 1913.) Price, 15 cents.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

Vol. I WASHINGTON, D. C., JULY 29, 1914 No. 51

TO STOP THE ADVANCE OF THE ARMY WORM.

Plowed Furrows and Poison for New Outbreak of Pest That Threatens Fields of Wheat, Oats, Corn, Timothy, and Blue Grass. Lawns in Washington, D. C., Overrun.

Letters, telephone messages, and individual callers have been soliciting aid from the United States Department of Agriculture to stop the advance of the hordes of army worms that threaten their fields of wheat, oats, corn, timothy, blue grass, and other grasses. There seems to be a general outbreak of this pest throughout the North, east of the Rocky Mountains. These worms are emerging from eggs laid by moths that apparently swarmed up from the Southwest. Great numbers of these moths have been noticed in the vicinity of Washington during the past month, hundreds of their broken wings having been seen near the Union Station. Lawns in the capital are being overrun by this pest.

Army worm. Natural size about 1¼ inches long, ¾ inch in diameter.

The army worm is a smooth, striped caterpillar about an inch and a quarter long and a quarter of an inch in diameter. It is rather dark in appearance. While normally it feeds by night and hides by day, not being generally noticed, as soon as it has increased to such a number that its food supply falls short it starts to travel and, becoming bolder, feeds both night and day. The moth from which this worm hatches is brown with a white spot on the center of each fore wing. It measures about an inch and one-half from wing to wing.

HOW WORMS MAY BE DESTROYED.

If the worms have not yet attacked a field the most practical way to keep them out is to plow furrows in front of them, throwing the furrow in the direction toward which they are traveling. The worms will fall into the furrow and when this is full they may be killed either by dragging a log back and forth in the furrow or by destroying the worms in holes previously dug at intervals of 20 feet in the bottom of the furrow. Kerosene poured on them in the holes will destroy them.

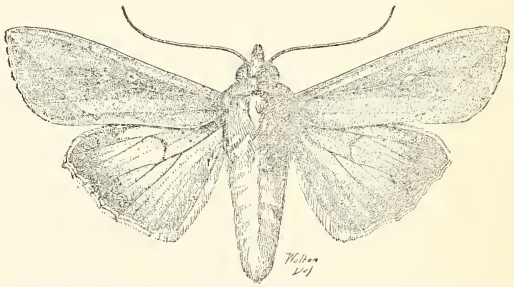
If the worms are already in the field the following mixture which will attract the worms and destroy them should be spread about:

1 pound of paris green (poisonous).
50 pounds of wheat bran.
Juice of one-half dozen oranges.

Bring this mixture to a stiff dough by the use of dilute molasses and scatter it amongst the worms. Care should be taken to keep this dough from children or domestic animals.

Prompt action to prevent the worms from infesting a field is much better than later efforts to attempt to kill them in the grain. Once the caterpillars have infested a field the measures necessary to destroy them may seriously hurt or even destroy the crop.

The worms at first are almost always localized in some definite breeding place in the field, and immediate efforts should be taken to eradicate them in these small areas before they have had time to spread. The normal breeding place of the army worm is in rank grass, such as is usually found along the edges of swamps or in spots of pasture land that have been overfertilized. They are practically never found in swamps, because the worm needs a reasonably dry place in which to breed.



Parent moth of the army worm. Enlarged. Natural size 1½ inches from tip to tip of wings.

Clean cultivation, rotation of crops, cleaning up of fence corners, close pasturage, and the burning over of waste grassland in the spring or fall are good measures to prevent a recurrence of the army worm.

WHAT TO DO FOR LAWNS.

For small areas, like lawns and private grounds, the poison bait, mentioned above, may be used. Equally

efficient is the application of a spray of 1 pound arsenate of lead dissolved in 25 gallons of water. If the powdered arsenate of lead is more easily obtainable, 1 pound of this may be mixed with 8 pounds of flour and dusted on the grass where the worms are feeding. It must be remembered that arsenate of lead is a deadly poison to men and animals as well as to army worms.

GOVERNMENT COOPERATING WITH STATES TO PREVENT FOREST FIRES.

The Agricultural appropriation act which Congress has just passed makes available $100,000 for continuing the cooperation of the Government with States in the protection of forests against fire.

This cooperation began in 1911, when Congress first recognized the duty of the Government to aid in protecting the watersheds of navigable streams by enacting the so-called Weeks law. The law not only provided for the purchase by the Government of forest lands in the East, needed for stream protection, but also authorized the Secretary of Agriculture to cooperate with the States to prevent fire on other forest lands located on the watersheds of navigable streams.

As a result, private owners of forest lands in many regions have been benefited by the establishment of a protective system of proved efficiency. During the fire season approximately 300 patrolmen are maintained in the field under this law. They guard an area of about 13,000,000 acres, for the most part mountainous and all on important watersheds. This area is protected at a very low cost per acre. A much larger acreage is protected in the same States by State employees and private agencies. All told, the expenditures from State and private funds are from three to five times as great as those from Federal funds.

Since forest fires, by destroying the soil cover, bring about erosion in rough country, with consequent silting up of river channels and loss of navigability, the fire problem is one of broad national importance. To secure Federal aid a State must have provided by law for a system of forest fire protection, and its expenditures must at least equal the Government's.

No State is allotted more than $10,000. The States which are now receiving aid are Maine, New Hampshire, Vermont, Massachusetts, Connecticut, New York, New Jersey, Maryland, West Virginia, Kentucky, Michigan, Wisconsin, Minnesota, South Dakota, Montana, Idaho, Washington, and Oregon, 18 in all.

The aim is to cooperate with every State which can meet the requirements of the law, giving most assistance to those which have difficulty in providing efficient protection. It is the policy to disburse the Federal fund in such a way that the educational value of the work will be fully realized.

A specific agreement is made with each State. The Government is supplied with the State's plan of fire protection, including maps which show the areas to be protected, location of lookout stations, headquarters and routes of patrolmen, and other features necessary to a clear understanding of the scheme of fire control. The State forester or similar officer is given an appointment in the Forest Service, which authorizes him to employ Federal patrolmen. The Federal expenditures are for the salaries of these patrolmen. The patrolmen are under the State forester's direction and supervision, with inspection of their work by the Forest Service.

Besides the direct results of patrol and other protective measures in keeping down the fire damage, the educational value of the cooperation has been shown through a much greater care taken by the public in the use of fire and the encouragement given States to enact legislation which will enable them to meet the requirements of the Weeks law.

The Government extends this cooperation to all States which will qualify. To do this a State must establish a fire protective system and appropriate funds for its use.

AMORTIZATION TABLES FOR USE OF LONG-TIME BORROWERS.

There are three ways of paying off borrowed money:

(1) The borrower pays the interest annually or semiannually, and at the expiration of the loan pays the full amount of the principal.

(2) The borrower pays the interest annually or semiannually, and at different periods in addition, pays off a portion of the principal.

(3) The borrower pays a fixed sum annually, and this payment includes interest and also a sum which goes to reduce the principal.

This last method is called amortization, and the sum paid annually by the borrower is such as to meet all interest charges and wipe out the debt at the end of its term. The advantages of this method are that the debt is discharged by easy regular payments, and the borrower is not called upon in any one year to raise a considerable sum of money to discharge the capital of his debt. Under this system he must set aside from each year's profits or income a proper proportion to meet his indebtedness. This frees him from the temptation of using money that should go toward paying his debt in one year for other purposes, because of an optimistic belief that next year's crops or income will make it easier to pay twice that amount.

The following amortization tables, showing the exact effect of paying a fixed sum each year, are taken from Farmers' Bulletin No. 593 entitled, "How to Use Farm Credit":

TABLE 1.—*Amortization table.*

Amount of loan	$1,000
Length of term ... years	15
Rate of interest ... per cent	5
Annual payments	$100

[These figures apply proportionately to a loan of any amount whatever.]

Annual periods.	Total annual payment.	Interest at 5 per cent.	Paid on principal.	Amount of principal still unpaid.
1	$100.00	$50.00	$50.00	$950.00
2	100.00	47.50	52.50	897.50
3	100.00	44.87	55.13	842.38
4	100.00	42.12	57.88	784.49
5	100.00	39.22	60.78	723.72
6	100.00	36.19	63.81	659.90
7	100.00	33.00	67.00	592.90
8	100.00	29.64	70.36	522.54
9	100.00	26.13	73.87	448.67
10	100.00	22.43	77.57	371.11
11	100.00	18.56	81.44	289.66
12	100.00	14.48	85.52	204.14
13	100.00	10.21	89.79	114.35
14	100.00	5.72	94.28	20.07
15	21.07	1.00	20.07	.....
Total	1,421.07	421.07	1,000.00	.....

The bulletin also contains tables showing the effects of annual payments from $70 to $90. Where $90 a year is paid, it requires 17 years to wipe out the indebtedness, the seventeenth payment being $56.38. Where $80 is the annual payment, it takes 21 years to wipe out the debt, the last payment being $8.42. Where $75 is paid, it takes 23 years to wipe out the debt, the last payment being $39.24. Where $70 is the annual payment, it takes 26 years to wipe out the debt, the last payment being $47.73.

The following table shows the amortization plan on a 6 per cent basis:

TABLE 2.—*Amortization table.*

Amount of loan	$1,000
Length of term ... years	16
Rate of interest ... per cent	6
Annual payments	$100

[These figures apply proportionately to a loan of any amount whatever.]

Annual periods.	Total annual payment.	Interest at 6 per cent.	Paid on principal.	Amount of principal still unpaid.
1	$100.00	$60.00	$40.00	$960.00
2	100.00	57.60	42.40	917.60
3	100.00	55.06	44.94	872.66
4	100.00	52.36	47.64	825.02
5	100.00	49.50	50.50	774.52
6	100.00	46.47	53.53	720.99
7	100.00	43.26	56.74	664.25
8	100.00	39.85	60.15	604.10
9	100.00	36.25	63.75	540.35
10	100.00	32.42	67.58	472.77
11	100.00	28.37	71.63	401.13
12	100.00	24.07	75.93	325.20
13	100.00	19.51	80.49	244.71
14	100.00	14.68	85.32	159.40
15	100.00	9.56	90.44	68.96
16	73.10	4.14	68.96	.....
Total	1,573.10	573.10	1,000.00	.....

Where $90 a year is paid, on a 6 per cent basis, it will take 19 years to wipe out the debt, the last payment being $77.20. Where $80 a year is paid, on a 6 per cent basis, it will take 24 years to wipe out the debt, the last payment being $63.68. Where $75 a year is paid, on a 6 per cent basis, it will take 28 years to wipe out the debt, the last payment being $47.07. Where $70 is the annual payment, on a 6 per cent basis, on a loan of $1,000, it will take 34 years to wipe out the debt, the last payment being $28.15.

It follows in all amortization plans that the smaller the annual payment toward the principal the longer will be the life of the debt, and consequently the larger the amount which must be credited to total interest. For example, a loan of $1,000 at 6 per cent, with annual payments of $70, takes 34 years for its discharge. In that time the borrower will pay $1,000 toward the principal and $1,338.15 for interest.

WARNING AGAINST WORTHLESS ANTIFAT "CURES."

Numerous inquiries received recently by the department indicate that promoters of so-called obesity remedies and fat-reducing cures are using an old trick dressed in new clothes to deceive fat people into spending money for worthless or dangerous preparations. The advertisements appeal to the vanity of people who wish to regain graceful figures and also to the business necessities of those who become so fat that they can no longer do their work efficiently.

In order to be able to give a definite reply to many people inquiring about specific remedies, the drug specialists of the Bureau of Chemistry recently conducted a series of tests with a number of nostrums of this character on employees in the department who wished to lose surplus flesh without injuring their health. One of the most widely advertised so-called prescriptions for reducing flesh was tried for a period of six months. The result was that two of the subjects under experimentation were obliged to stop after taking the medicine for two or three weeks because of its injurious effect. The third subject gained 2½ pounds instead of losing flesh. Another of the so-called remedies of a "great obesity specialist" was tried. The subject scrupulously followed the diet list which accompanied this remedy and faithfully carried out the system of exercises recommended. After six months' treatment there was a reduction of 18 pounds of flesh, but this the experimenters attribute to the fact that the subject ate no bread, butter, starchy food, pastry, sugar, or candy while under observation. The first month after discontinuing the treatment the subject gained 10 pounds, and in three months was back to the original weight recorded at the beginning of the treatment.

The circulars, letters, and other announcements of these so-called obesity remedies, which are published broadcast, in many cases asserted that a 2 cent stamp is the only charge. Those sending the 2 cents to the supposed philanthropist, who wishes to help other sufferers to get rid of surplus flesh, commonly received a statement that the "physician" or "professor" discovered this remedy in the wilds of some foreign country or received it from some famous Indian medicine man on his deathbed. Then after due praise of the effectiveness of the remedy the "professor" states that he is willing to supply this wonderful treatment for a fee of from $15 to $25 a month. If the prospective patient does not answer immediately he is besieged with a line of follow-up letters, and finally as a great individual favor he is told that he can obtain this marvelous guaranteed flesh reducer for the sum of $2.50. In return for the reduced price, however, the patient must agree to tell all his fat friends about this wonderful means of shedding avoirdupois.

Judging from the letters received by the department appealing to it to stop this practice under the food and drugs act, women are usually the victims of these "professors." Much of the literature contains alleged statements of some individual woman's thrilling experience in fat-forming and fat-reducing, and this makes the situation seem real and personal

to the other women. Cases are on record where women have parted with almost their last dollar in the hope of improving their figures, and have awaited results with anticipation that makes their later disappointment almost pathetic. The strong feature of most of the literature is that no dieting is necessary; the medicine is to do it all and the patient is told that he can eat all he wants and as often as he wishes, which is a strong inducement to most stout people.

These preparations usually contain thyroids and a laxative. The thyroids may prove very hurtful unless given under the advice of a physician personally familiar with the subject's physical condition. The department has on record an instance where death has followed overdoses of preparations containing thyroids. Other preparations contain poke root (*phytolacca*), a poisonous drug, and others, analysis shows, contain nothing that could possibly have the slightest effect in reducing flesh.

The promoters of one preparation assert that it secures most marvelous results by a process of elimination of foods without digestion. These people guarantee the reduction of a pound a day. A preparation of this character, if it did what its makers claim for it, would probably eliminate any need of digestion in the future. Another product, examination shows, consists principally of ordinary soap. The idea is to apply this locally with friction and thus remove the fat wherever it may be in excess. A still more clever scheme provides chemicals to be added to the water in which the patient is to bathe. These chemicals are of such a nature that they form a sort of curd in the water after the patient has bathed. This curd, the advertisement states, is fat and surplus tissue removed from the body. Other schemes supply a tablet at 75 cents a dozen for which a claim is made that it will reduce fat at the rate of a pound a day.

No other class of preparations exploited to humbug the people has a wider sale, and in nearly every instance they are absolutely worthless. In many cases where patients seem to lose weight this result is attributed to the hot baths and the diet and exercises recommended as an accompaniment in taking the medicine.

The only ways that the department's specialists know of safely reducing flesh are rigid dieting, and strenuous exercise, and those to be effective must be continued over a long period of time. The fat reducing patient must eliminate from his diet fats, starchy foods, and sugar. In many cases it is not wise, because of other physical conditions, for fat people to attempt any rapid reduction in weight. As a general rule, diet and exercise are best directed by a skilled physician. Loss of flesh is by no means a blessing if accompanied by loss of health, energy, or strength.

It is practically impossible to prevent the sale of these preparations in interstate commerce under the food and drugs act for the reason that the claims upon the packages are purposely so guarded as to evade action. As a rule the claims, guaranties, etc., appear in advertisements, circular letters, etc., and these the makers are very careful to keep separate from the package.

The Post Office Department, however, has been instrumental in silencing some of these promoters by issuing fraud orders against them and denying them the use of the mails. The Department of Agriculture, can only warn the people to beware of all preparations containing such claims, for in the knowledge of all drug specialists at the present time there is no preparation that can be depended upon to reduce flesh in any marked degree without doing injury.

GOOD ROADS AS CROP PRODUCERS.

Government Studies Show How the Agricultural Output of a County Depends Upon its Highroads.

That an improved road will increase vastly the productiveness of the area through which it runs has now been satisfactorily demonstrated by studies conducted by the United States Department of Agriculture in Virginia. Conditions in Spotsylvania County were investigated with particular care, and the results have proved surprising. In 1909 the county voted $100,000 to improve 40 miles of roads. Two years after the completion of this work the railroad took away in 12 months from Fredericksburg, the county seat, 71,000 tons of agricultural and forest products hauled over the highways to that town. Before the improvement of the roads this total was only 49,000 tons annually; in other words, the quantity of the county's produce had risen more than 45 per cent. Still more interesting, however, is the increase shown in the quantity of the dairy products. In 1909 these amounted to 114,815 pounds, in 1911 to 273,028 pounds, an increase of practically 140 per cent in two years. In the same time shipments of wheat had increased 59 per cent, tobacco 31 per cent, and lumber and other forest products 48 per cent.

In addition to this increase in quantity the cost of hauling each ton of produce was materially reduced. In other words, the farmers not only produce more, but produce more cheaply, for the cost of transportation to market is of course an important factor in the cost of production. From this point of view, it is estimated that the $100,000 spent in improving the roads in Spotsylvania County saved the farmers of that county $41,000 a year.

In the past two years the traffic studies of the Federal experts show that approximately an average of 65,000 tons of outgoing products were hauled over the improved roads in the county an average distance of 8 miles, or a total of 520,000 "ton-miles." Before the roads were improved it was estimated that the average cost of hauling was 20 cents a "ton-mile;" after the improvement this fell to 12 cents a "ton-mile," or a saving of 8 cents. A saving of 8 cents per mile on 520,000 "ton-miles" is $41,000 a year. The county's investment of $100,000 in other words returns a dividend of 40 per cent annually.

Because this saving, in cases of this character, does not take the form of cash put directly into the farmer's pocket there is a widespread tendency to believe that it is fictitious profit, while as a matter of fact it is just as real a source of profit as an increase in the price of wheat.

In Dinwiddie County, Va., for example, where peanuts are one of the staple crops, the average load for two mules on a main road was about 1,000 pounds before the road was improved. After its improvement the average load was found to be 2,000 pounds, and the time consumed in hauling the larger load to market was much reduced. In other words, one man with a wagon and two mules could do more than twice as much work with the improved road than with an unimproved road. This is the explanation of the extraordinary rise in the total output of agricultural products in a county with a good road system.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

Weekly News Letter to Crop Correspondents

UNITED STATES DEPARTMENT OF AGRICULTURE

ISSUED BY AUTHORITY OF THE SECRETARY OF AGRICULTURE

VOL. I WASHINGTON, D. C., AUGUST 5, 1914 No. 52

$206,000,000 SPENT ON ROADS IN 1913.

The accompanying table on page 2 shows the total State expenditures for roads during the year 1913, the amount of State aided roads completed in that year, and the total mileage of improved and unimproved roads. In addition, it shows the amount of automobile revenues received in 1913 and the State funds available for the present year, 1914.

The local cash road and bridge expenditures on the part of counties, districts and townships has not yet been compiled for 1913. The figures for 1912 are given, however, and it is estimated that these are 10 per cent lower than those for the year 1913. The table shows that in 1913 there was a total expenditure of State funds for roads of approximately $38,750,000. The local road expenditures, if a 10 per cent increase over 1912 is correct, would amount to $151,250,000. In addition, there must be counted approximately $15,000,000, as the value of statute labor in working out the road tax. This makes a total outlay for roads in 1913 of about $206,000,000.

In 1904 the total expenditures for labor aggregated a little less than $80,000,000, so that the present annual expenditure for roads is more than two and a half times as great as it was nine years ago.

The fact that the States for 1914 have appropriated nearly $43,000,000, or an increase of more than $4,000,000, over the 1913 appropriation, and an increase of nearly $13,000,000 over the 1912 State appropriation, indicates an increased interest in the State development of good roads. The mileage of roads built with the aid of State funds to the close of 1913 aggregated nearly 21,000 miles, or only about 2,000 miles less than the famous national road system of France.

It is interesting to note that, as the table shows, there are now but nine States that set aside no State funds for road building, and there are only seven States which now have no State highway law.

AUTOMOBILES CONTRIBUTE NEARLY $8,000,000 TO ROAD BUILDING.

The table shows that automobile owners paid in licenses and fees in 1913, $7,820,895, nearly all of which was applied to road work. This sum is about one-thirtieth of the total State and local expenditure for roads.

(See table p. 2.)

THE GERMINATION OF CRIMSON CLOVER SEED.

Since November 1, 1913, there have been imported into the United States 3,329,883 pounds of crimson clover seed. This seed comes mostly from France and Austria, where the harvest season is practically the same as in this country. The time for seeding follows the harvest season so closely that only a part of the imported seed is received in time to be sown the year it is raised. If the conditions of storage are not the best the seed may lose materially in vitality between the time of harvest and that of seeding the next year.

New seed of good quality is free from any brownish color, but old seed shows varying degrees of brown according to age and conditions under which it has been stored. The brownish color is an indication of poor germination—the darker the color the poorer the germination. Seed which shows a slight brownish color should be tested for germination before sowing, and no brown seed should be used unless a germination test shows it will grow well.

Germination tests of the 119 lots of crimson clover seed imported in the last eight months show an average of 80 per cent of live seeds. The germination varied from 40 per cent for the poorest lot to 97 per cent for the best lot. As crimson clover seed loses its vitality rapidly, and as practically all the imported seed is 1 year old before seeding, an effort should be made to save domestic seed wherever possible. This is especially true of seed for local or home use, where it can be seeded without thrashing or cleaning.

HOME CLASSES IN PRACTICAL FARMING AND DOMESTIC SCIENCE FOR GROUPS OF FARM WORKERS.

A plan whereby 10 or more farmers or farm women can form home classes in agriculture or domestic science and receive the textbooks, lectures, lantern slides, laboratory and cooking equipment necessary to conduct them has been devised by the department in cooperation with agricultural colleges of certain States.

The object of the plan is to make accessible at home, to men and women who have not the time or means to attend the regular courses at the colleges, practical short courses in agriculture and home management specially adapted to their districts. These courses, which will consist of 15 to 20 lectures, and will consume

HIGHWAY DATA.

[Prepared by Division of Economics, Office of Public Roads, June, 1914.]

State.	Original State highway law passed (year).	State expenditures during 1913.							Total mileage.				Per cent of roads improved.	State convict labor, 1913.			Miles maintained by State department, 1913.	Automobile revenues, 1913.	State funds available for 1914.	Cash road and bridge expenditures of counties, districts, and townships during 1912 (1913 appropriations are estimated to be 10 per cent higher than these figures).
		Grand total for construction, maintenance, and administration to Jan. 1, 1914.	State-aid roads and bridges.		State roads and bridges.		Administration and miscellaneous.	Total, 1913.	State and State-aid roads completed, 1913.	Total State and State-aid roads to Jan. 1, 1914.	Total mileage of improved roads in State.	Total mileage of all roads.		Total days worked.		Miles of road built.				
			Construction.	Maintenance.	Construction.	Maintenance.								Quarrying and crushing rock.	Building roads.					
Alabama	1911	$292,039	$116,850				$10,155	$127,005	97	200	5,491	40,639	11.1					$83,000.00	$267,165	$1,644,094
Arizona	1909	607,136			$177,890	$14,232	82,518	274,631	81	220	354	5,987	5.9		40,925	6	88	17,416.00	258,577	200,000
Arkansas	1913	25,000					25,000	25,000			1,085	26,445	3.0					51,000.00	25,000	1,586,050
California	1895	2,986,880			2,032,084			2,032,084	200		8,788	48,069	18.3					75,000.00	5,000,000	9,902,160
Colorado	1909	520,478	434,171				13,829	461,229			304	30,571	1.0		40,000	50		56,520.00	375,000	1,469,690
Connecticut	1895	11,502,519	754,436		1,401,231	1,166,637	161,271	3,483,575			3,100	12,582	24.7					316,666.76		1,250,000
Delaware	1903	162,695	30,000					30,000	23	134	221	3,000	7.4		2,935	1		24,735.00	30,000	339,480
Florida											2,175	17,954	12.1							1,500,000
Georgia	1908	Conv. labor.									12,000	83,986	14.2		768,000	400		12,000.00		2,750,000
Idaho	1905	323,000	[1] 58,000				10,000	68,000			511	18,403	2.8					35,100.00	250,000	750,000
Illinois	1905	480,000						100,000	45	185	9,000	94,141	9.6	107,265	3,629	1		567,134.78	500,000	6,500,000
Indiana											26,831	63,370	42.3					118,245.00		8,877,553
Iowa	1904	101,000					53,000	53,000			2,505	104,027	2.4					787,411.08	60,000	7,500,000
Kansas	1911	18,600					9,500	9,500			374	98,302	.4					186,066.06	10,000	5,155,360
Kentucky	1912	25,000					15,000	15,000			10,636	58,000	18.3					52,000.00	25,000	1,933,000
Louisiana	1910	370,594	111,000					111,000	104		567	24,962	2.3						130,000	2,147,063
Maine	1901	[2]							167	1,056	3,044	25,528	11.9					135,635.00	320,000	1,482,743
Maryland	1898	9,612,529	200,000		1,127,874	261,379		1,589,253	220	1,430	2,376	17,025	14.0				575	144,930.25	3,500,000	1,000,000
Massachusetts	1892	13,905,396	[3] 274,583		[4] 1,148,680	750,102	92,703	2,266,068	171	[5] 1,030	8,845	17,272	51.2				981	629,242.00	2,447,000	2,350,000
Michigan	1905	1,377,023	400,000		125,000		20,000	545,000	590	2,344	8,177	68,906	11.9					199,328.75	1,070,000	5,725,000
Minnesota	1905	1,337,993	368,569				134,617	503,186	[5] 241		6,206	79,323	7.8					40,000.00	1,400,000	3,000,000
Mississippi											345	44,072	.8							2,000,000
Missouri	1907	[7] 1,146,730	300,022	97,737			10,433	408,192			4,756	107,923	4.4					173,510.50	300,000	4,650,516
Montana	1913	2,484					2,484	2,484			95	23,319	.4			45		8,700.00	10,000	1,532,788
Nebraska	1911	221,067						[9] 52,428			249	80,338	.3					26,000.00	80,000	2,278,188
Nevada	1911	[8] 20,000									62	12,751	.5					3,322.94		150,000
New Hampshire	1903	2,083,565	90,671	29,095	222,457	80,565	52,660	475,449	131	872	1,876	15,116	12.4				740	141,151.64		1,000,000
New Jersey	1891	5,821,115	558,370	495,903			77,618	1,131,891	149	1,833	4,500	14,842	30.3					636,543.07		3,629,773
New Mexico	1909	340,620			121,631			121,631	56		705	16,920	4.2					12,302.73	120,000	300,000
New York	1898	67,155,471	[10] 1,721,696		10,297,265	3,353,000	159,967	15,531,928	1,000	5,000	17,200	80,000	21.5				3,643	1,275,727.27	14,000,000	6,938,694
North Carolina	1901	23,500					5,000	5,000			3,449	48,285	7.0		42,000			60,000.00	5,000	2,333,942
North Dakota	1909										161	61,593	.3					35,010.03		1,023,569
Ohio	1901	3,268,333	656,182	12,030			69,953	738,174	167	415	28,312	83,681	33.8					395,063.23	3,500,000	7,350,000
Oklahoma	1911	10,323					5,000	5,000			499	71,325	.7					3,000.00		3,374,180
Oregon	1913	5,008					5,008	5,008			4,941	35,896	13.7		11,350			43,476.08	238,000	3,254,665
Pennsylvania	1903	[11] 20,716,339	743,612		1,904,652	1,919,252	38,716	4,606,232	185		3,476	87,387	4.0				6,000	841,062.41	3,000,000	5,864,718
Rhode Island	1902	3,504,067			[12] 440,801	260,864	5,000	715,664	30	324	1,246	2,121	58.8				301	123,851.00	190,000	281,775
South Carolina											4,883	45,549	17.3							1,000,000
South Dakota	1911										286	56,354	.5					89,170.00		1,250,000
Tennessee											5,354	45,913	11.7					9,000.00		2,000,000
Texas											4,896	128,971	4.0							7,269,592
Utah	1909	531,000	97,000					97,000		952	1,653	7,970	20.7					3,000.00	100,000	500,000
Vermont	1892	2,727,963	385,000	100,000			20,000	505,000	200	1,431	3,078	14,406	21.3					111,459.81	410,000	676,039
Virginia	1906	1,663,317	268,206					268,206	619	2,052	3,732	43,399	8.6		274,427	192		80,008.32	450,000	2,296,105
Washington	1905	4,281,989			1,343,407	17,258	23,105	1,383,770			3,950	39,051	10.0					48,356.00	2,500,000	4,059,509
West Virginia	1909	118,000					3,500	3,500			541	32,109	1.7					40,000.00		1,042,353
Wisconsin	1911	1,347,107	828,000				75,000	903,000	[13] 536	1,463	11,163	61,090	18.2					190,770.00	1,230,000	4,000,000
Wyoming	1911	[8] 32,000					[8] 8,763	8,763			416	10,569	4.0					7,920.00	6,237	365,386
Total		158,717,379	8,487,368	734,774	20,351,972	7,823,289	1,183,037	38,755,088	5,009	20,741	223,774	2,225,842	10.0	107,265	1,183,265	695	9,319	7,829,895.77	42,951,981	137,483,985

[1] $40,000 of this for bridge across Snake River. [2] Amount not reported. [3] State expenditures on town roads, including $146,263 from motor vehicle fund. [4] Includes $338,361 authorized by special acts of legislature. [5] Also 584 miles of grading, 691 culverts, and 100 bridges. [6] State roads only. [7] Distributed to counties from various funds. [8] Equipment for convict-labor camps. [9] For large bridges only. [10] State aid to towns. [11] Total appropriations. [12] $170,068 of this amount was for bridges. [13] Also 460 miles of earth road.

five or more weeks, can be arranged to suit the spare time and convenience of each group of people.

The courses to be offered at first are poultry raising, fruit growing, soils, cheese manufacturing, dairying, butter making, and farm bookkeeping; and for the women especially, courses in the preparation, cooking, and use of vegetable and cereal foods. The department will supply lectures and lantern slides covering these subjects, and the States which have agreed to cooperate in the plan will lend to each group laboratory and cooking apparatus valued at $100 and a reference library. The textbooks and lectures will be made so complete that each group can safely appoint one of its members as study leader to direct the work of the course.

When a group has decided to take up the work, the State which cooperates sends an agent with the department's representative to organize a sample class and assist the leader whom they elect in laying out the work and in showing him the best methods of procedure. The classes commonly are held from 8 to 12 in the morning and from 1 to 4 in the afternoon, two or three days each week. The sessions are not held every day, so that the members will have time to attend to their farm duties in between the sessions, as well as before and after the instruction period. The classes meet commonly at the most convenient farmhouse. During the morning hours, textbook work is done. In the afternoon laboratory work is conducted, and the women who have elected to take the domestic science courses have practical lessons in cooking.

As soon as a class is established, the State organizer withdraws to start a class in some other district. The work thereafter is left in charge of the leader, who receives assistance by mail from the college or the department in carrying on the work.

As there is no regularly paid instructor, classes can be carried on all over the State as rapidly as the college organizer can visit the groups and as quickly as the laboratory sets supplied by the college become available. The local leader will preside during the reading of the lectures and references, for which full texts and lantern slides are supplied by the department. He will also be responsible for the laboratory equipment. Everyone who completes the course will receive a certificate from the State college.

Not all of the States have yet agreed to cooperate in this plan. Last winter experiments along these lines were carried out successfully in Pennsylvania, and this has stimulated an interest in the method in other States. In one of the Pennsylvania classes more men applied than could be accommodated, and all of the 20 men and 15 women who began the course completed it. Pennsylvania is now arranging for more classes, while Massachusetts, Michigan, Vermont, and Florida expect to take up the work. Other States, such as Maine, New York, New Jersey, and Delaware, have signified their willingness to cooperate.

Ordinarily a college in a State usually applies to the department seeking its cooperation when sufficient interest has been shown in the plan in several communities where 10 or more people have sought the instruction. For financial reasons certain colleges are not so able to engage in the work as are others.

The advantage claimed for the new home courses with local leaders and laboratory equipment over the ordinary correspondence courses is that only a small percentage of those who take the individual correspondence course finish it. Studying in a group, with laboratory work and a leader, seems to stimulate the interest and add a social feature which lead the members of the group to follow the work conscientiously and complete it. Experiments with free correspondence courses show that while many individuals gain advantage from them, many others, because the material is furnished free, do not feel the same obligation to complete them as they do when they pay a substantial sum of money for the instruction.

SURGERY FOR SICK TREES.

A cavity in a decayed tree is something like a cavity in a decayed tooth. If an unreliable tree surgeon who has been called in to save the tree only partially removes the diseased part of the wood, uses no antiseptic coatings in the cavity, and fills it up with cement, the tree is no more cured than is a person whose decayed tooth has not been properly filled by a dentist. The only difference is that after the tree cavity has been covered, if the work has not been properly done, the tree has no way of making its trouble known except by further decay.

Within the last decade there has been a great increase in demand for surgeons to repair decaying shade trees, but the possibilities of practicing fraud in this profession, like the instance just cited, have tempted so many unreliable people to dabble in the science that tree surgery has fallen somewhat into disrepute. The Department realizes that commercial tree surgery should occupy a high place in the estimation of the public, and has recently issued a pamphlet entitled "Practical Tree Surgery," wherein suggestions are made for improvement along these lines.

As in all professions, there are reliable and unreliable men and firms competing for contracts in tree surgery. In recent years so many occasions have arisen when property owners felt the necessity of calling in commercial tree surgeons to attend to their trees that there are now numerous firms, both honest and dishonest, engaged in the work. Usually tree surgery is practiced in connection with some nearly related line, but

often it is taken up as a business of itself. When a blight such as the chestnut bark disease infects the trees of a district, the community, or individuals in it, will often spend considerable money to control ravages which may rob the whole district of its trees. An affection like the chestnut bark disease is contagious. It requires scientific knowledge of the disease to know whether an affected tree should be destroyed at once or is worth treating. It requires scientific training to understand the manner of growth of the fungi causing the disease and what treatment is best.

Many individuals who have had faith in tree surgery have lost it through following the advice of unreliable tree surgeons who claimed to be able to diagnose a case, but whose main interest was to collect a good sum of money for their work.

MISUSE OF PRUNING HOOKS AND CLIMBING DEVICES.

Besides the careless filling of decayed cavities in trees, there are other practices of certain so-called "tree surgeons" that do the trees more harm than good. Many of these "surgeons," as well as the people who employ them, do not realize the danger arising from fresh injuries to a tree. The tree owner should realize that prompt attendance to fresh injuries will largely do away with the need of tree surgery 15 or 20 years hence. The tree surgeons must realize that if they make fresh injuries in the living bark, when treating decayed portions, they are laying the tree open to more dangers of infection that will result in further decay.

Just as a person is subject to infection through cuts and scratches, trees are rendered subject to infection by having their living bark torn. Notwithstanding this, many tree surgeons use pruning hooks and climbing spurs and cut fresh gashes in the tree. To break off small dead branches a workman may use a long pruning hook as though it were a club. In doing so the hook usually causes injury to the young bark nearby. Every new wound may furnish a new point of entrance for decay, even though the old dead branch may have been removed.

The use of climbing spurs should be particularly avoided on trees in vicinities where there is a contagious infection. They simply render the treated tree all the more liable to catch the disease which is "in the air."

All properly equipped firms of commercial surgeons should have ladders that would reach 40 or more feet into a tree. Ladders, ropes, and rubber-soled shoes will allow a man to reach practically every part. Reliable estimates indicate that it takes somewhat longer (perhaps 25 per cent on an average) to do work on a tree when these are used instead of climbing spurs, and this is one reason why many firms who value remuneration more than reputation use the spurs.

TO MINIMIZE UNRELIABILITY.

The Department is suggesting a plan that may help put commercial tree surgery on a better basis. Owners are urged to have a definite written contract with the tree surgeons they employ, and the following is suggested as a model for such contract.

(1) No climbing spurs shall be used on any part of a tree.

(2) The shoes worn by the workmen shall have soft rubber bottoms.

(3) Ordinary commercial orange shellac shall be applied to cover the cut edges of sapwood and cambium (which is the soft formative tissue from which the new wood and bark originate) within five minutes after the final trimming cut is made.

(4) All cut or shellacked surfaces shall be painted with commercial creosote, followed by thick coal tar.

(5) All diseased, rotten, discolored, water-soaked, or insect-eaten wood shall be removed in cavity work and the cavity inspected by the owner or his agent before it is filled.

(6) Only a good grade of Portland cement and clean, sharp sand in no weaker mixture than 1 to 3 shall be used to fill cavities.

(7) The contractor shall repair free of expense any defects that may appear in the work within one year.

If the owner prefers to have a cavity filled with asphalt or other material instead of cement, the contract can be altered accordingly. If it is desirable to substitute some other preparation for shellac, this can be done. Similarly, under certain conditions, various other modifications may be made, although alterations in Nos. 1, 2, 5, and 7 should be made with caution. It may so happen that if all insect-eaten wood is removed, the tree may be dangerously weakened; under such conditions the diseased matter can be removed to solid wood and the cavity fumigated. Other suggestions along these lines may be found in the pamphlet issued by the department.

INVITATION TO COOPERATE.

The department realizes that this science is comparatively new and that methods in the near future may be developed that will prove far superior to some now in common use. It therefore invites correspondence either from individuals or firms concerning new methods of treatment and is prepared to advise regarding any particular method so far as experimental results will permit. The cooperation of all who are interested is necessary for this work. All interested are urged to write for the new bulletin.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914

U. S. DEPARTMENT OF AGRICULTURE.

INDEX TO VOLUME I.

Weekly News Letter to Crop Correspondents

AUGUST 13, 1913—AUGUST 5, 1914.

[Heavy figures indicate the issue number; light figures indicate the page number.]

Abattoirs, cooperative, for farmers, advantages, **23**, 3.
Adams Act of 1906, history and results, **37**, 2.
Adulteration, seeds of Kentucky bluegrass and redtop, tests, etc., **44**, 1–2.
Agricultural—
  agents, duties, **35**, 3–4.
  clubs, prizes, recommendations, **29**, 6–7.
  extension, Smith-Lever law, governors asked to put into effect, **42**, 2.
  extension, Smith-Lever law, maximum amounts for States, **43**, 1.
  "Outlook," scope, purpose, etc., **5**, 4.
  scientists, teaching by farmer, remarks, **28**, 4.
Agriculture—
  and mechanic arts, colleges, disbursements for, 1914, **20**, 2.
  high schools in Ohio giving courses, **7**, 4.
  home classes, courses, etc., **52**, 1, 3.
  publications, recent, list, May, 1914, **41**, 3.
  reading courses, colleges offering, **13**, 2–3.
  reading courses offered by department, **13**, 2–3.
  study, methods and means, **13**, 2.
  teaching, in common schools, requirements in several States, **13**, 2.
  Tenth International Congress, session at Ghent, remarks, **20**, 4.
Alabama—
  area, land tillable and per cent under cultivation, **25**, 3.
  boys' corn clubs, best records, 1913, **40**, 3.
  Chilton County, appointment of visiting rural nurse, **41**, 2.
Alaska—
  farm products, **27**, 3.
  farming possibilities, notes, **27**, 3–4.
  homesteads, requirements, acreage, etc., **27**, 3.
Alcohol in fruit juices, labeling, decision, September, 1914, **46**, 2–3.
Alfalfa—
  drought-resistant, distribution of seed by department, results, etc., **35**, 4.
  growing, adaptability to various conditions, discussion, caution, etc., **33**, 3.
  seed, requests received by department, remarks, **33**, 3.
  seed, spurious, warning, **13**, 4.
  use as silage, **44**, 4.
  use in eradication of Canada thistle, note, **6**, 4.
  value as hay crop, work of South Carolina experiment station, **18**, 4.
  value for poor soils, discussion, **9**, 3.
  varieties for different localities, investigations, **21**, 3.
  weevil, occurrence, control methods, etc., **3**, 3.
  weevil, spread, decrease, methods of combating, etc., **3**, 3.
  weevil, transportation in articles of commerce, instance, **3**, 3.
Alkali—
  and Drought-resistant Plant Investigations, Office, work, **21**, 3–4.
  lands, value of Egyption cotton, **21**, 3.
Almonds, California, injury by birds, **7**, 4.
Alsberg, Carl L., remarks on rural sanitation, **6**, 1–2.
Ammonium sulphate, demand as nitrogenous fertilizer, note, **27**, 2.
Amortization—
  farm-land national banks, method, **29**, 3–4.
  tables for long-time borrowers, **51**, 2–3.
Angora goats—
  management, increase, etc., **40**, 4.
  raising, profitable in America, **40**, 3–4.
Angus cattle, raising for beef, advantages, **34**, 4.
Animals—
  importation for breeding, regulations, **17**, 4.
  predatory, Federal bounty urged as control measure on western ranges, **47**, 1–2.
  slaughtered under Federal meat inspection, February, 1914, **40**, 1.
Anopheles quadrimaculatus, prevalence in cotton region, relation to efficiency of labor, etc., **35**, 1–2.
Antifat cures, warning against, **51**, 3–4.
Antihog-cholera serum, use against hog cholera, results, etc., **26**, 2–3.
"Aphiscide," misbranding, **33**, 1.
Apple—
  Eastman, development for upper Mississippi Valley, value, **18**, 3.
  market demands, new variety, etc., **18**, 3.
  standard barrel and grades, new law, **8**, 1.
Appropriations—
  agricultural extension, maximum amounts for States, **43**, 1.
  agricultural extension, Smith-Lever law, **42**, 2.
Argentina—
  exports of meats and meat food products to United States, October and November, 1913, **23**, 4.
  meat consumption per capita, **35**, 4.
Arizona—
  area, land tillable and per cent under cultivation, **25**, 3.
  date growing and distribution, note, **30**, 1.
  growing Egyptian cotton, **21**, 3.
Arkansas—
  area, land tillable and per cent under cultivation, **25**, 3.
Arlington experimental farm—
  improvement from dredging Potomac River, **30**, 2.
  location, equipment, work, etc., **30**, 1–2.
Army Remount Committee, new member, **4**, 4.
Army worm—
  control methods, **51**, 1–2.
  description and control, **51**, 1–2.
Arsenical dips, use in tick eradication, management and value, **15**, 2–3.
Asparagus bean—
  nature, use for food and forage, **18**, 1–2.
  nature, value as food and forage, **18**, 1–2.
  new name, tests by department, etc., **18**, 1–2.
Atlantic coast fisheries, output of fish scrap and oil, **27**, 2.
Australia—
  exports of meats and meat food products to United States, October and November, 1913, **23**, 4.
  meat consumption per capita, **35**, 4.
Automobiles, contributions to road building in fees and licenses, **52**, 1, 2.

Bacon, production in Brooks County, Ga., **39**, 4.
Bacteria in milk, reduction by care in shipping to market, **46**, 2.
Bamboo, timber, growing in United States, value, etc., note, **30**, 1.
Bank, farm-land cooperative, operation, example, **29**, 5–6.
Banks—
  farm land, kinds proposed in bill, purposes, **29**, 1–2.
  national farm-land, bill for establishment, summary, **29**, 1–6.
  national farm-land, kinds, capital, powers, etc., provisions in bill, **29**, 1–6.
Bark beetles, check by Government, **1**, 3.
Barley, increased production in Europe, **18**, 4.
Barrel, standard for apples, **8**, 1.
Barrels, potato, agents in spread of powdery scab, **36**, 2.
Bean—
  asparagus. *See* Asparagus bean.
  giant stock pod, claims by advertisers, tests by department, etc., **18**, 2.
  jack. *See* Jack bean.
  Tepary, dry-land crop, value, distribution of seed by department, **35**, 4.
Bedbugs—
  eradication, methods, **15**, 4.
  habits, means of extermination, etc., **15**, 4.
Beef—
  production, South, advantages, **34**, 3–4.
  tapeworm, transmission to man, danger, **8**, 4.
Beet, sugar, investigations, work of department, **11**, 2.

Beetles, bark, check by Government, **1**, 3.
May. *See* May beetles.
Benzine, use against bedbugs, **15**, 4.
Bermuda lily, growing investigations, **50**, 2.
Biological products—
supervision by department, **9**, 4.
value for man and animals, remarks, **9**, 4.
Biophysical Investigations Office, work, **21**, 4.
Bird—
bulletin, No. 513, no free copies available, **45**, 4.
census, suggestions, **40**, 2.
laws, amendments, **50**, 3.
Birds—
enemies of boll weevil, **46**, 3–4.
injury to almonds in California, **7**, 4.
insectivorous, protection, Federal regulations, **10**, 2.
migratory, protection, Federal regulations, **10**, 2.
migratory, protection, regulations proposed, **50**, 3.
Black scab, potato, danger of introduction on imports, object of quarantine, **8**, 3.
Blackleg vaccine, use against blind staggers of horses, practice in Nebraska, results, **31**, 2.
Blind staggers—
causes, control measures, etc., **31**, 2–3.
symptoms, **31**, 3.
Blood, dried, value as fertilizer, etc., **23**, 3.
Blue jay, California, pest of almond orchards, note, **7**, 4.
Bluegrass, Kentucky, seed, adulteration and misbranding, **44**, 1–2.
Boll weevil—
control measures, **9**, 2–3.
cotton, description, confusion with bollworm, **11**, 1–2.
enemies, orioles, swallows, and nighthawks, **46**, 3–4.
injury, relation of malaria, **35**, 1–2.
injury to cotton, control methods, etc., **47**, 2–3.
Bollworm, cotton—
control measures, **11**, 2.
description, confusion with boll weevil, **11**, 1–2.
pink, danger from imported lint, **39**, 4.
Bond, consignee of imported meats, requirements, **10**, 2.
Bonds—
issuance by farm-land national banks, **29**, 3.
national farm-land bank, status, **29**, 4.
Bookkeeping, farm, note, **33**, 4.
Books, sale by Government at cost, **42**, 3–4.
Boric acid, danger of use in food, **41**, 4.
Bots—
injury to horses, remedy, etc., **5**, 4.
origin, nature, infestation of horses and colts, remedy, etc., **5**, 4.
Boys'—
corn and pig clubs, combination on 2-acre plot, plans, **15**, 1.
corn clubs, champions, **20**, 1.
corn clubs, visit to Washington, note, **12**, 3.
corn clubs, work, educational value, etc., **12**, 3.
corn-club contest, best records, Alabama, 1913, **40**, 3.
education, plans for combination of corn and pig clubs as means, **15**, 1.
farmer, creed, Prince Edward County, Va., **32**, 4.
hog raising, advice by department, **28**, 5.
pig clubs, purpose, scope, **13**, 4.
prize winners in agricultural clubs, visit to State fair, Memphis, Tenn., management, **29**, 7.
Boys' and girls'—
potato clubs, champions, products grown, and cost, **20**, 2.
poultry clubs, inauguration in Virginia, work, etc., **15**, 1–2.
Brand, Charles J., discussion of cooperative production and marketing, **24**, 1–3.
Bread, Zuñi Indian, recipe, **33**, 4.
Breakfast food, value of popcorn, **12**, 4.
Breed, sheep, selection, importance, **45**, 3.
Breeding horses, importations, 1913, **41**, 3.
Brimstone, use against bedbugs, **15**, 4.
Brood sows, selection, note, **28**, 4.
Brush clearing, use of Angora goats, **40**, 4.
Buildings—
farm, fire prevention, **6**, 2–3.
farm, tenant house, plans for inexpensive, **28**, 1–2.
farmhouse, importance of arrangement, etc., discussion, **26**, 1–2.
Bull, Hereford, winner of championship at Chicago International Stock Show, **20**, 2–3.
Bur clover, winter cover crop for South, **4**, 4.
Butter—
color, causes, **50**, 3–4.
farm prices, May 1, 1914, comparison with 1913, **43**, 3.
relation of quality to quality of cream, **11**, 3–4.
requirements of Navy Department for use on ships, **32**, 4.
sweet-cream, keeping quality, investigations, **32**, 4.

Calcium chloride—
use to prevent evaporation of water in fire bucket, **6**, 2.
use to prevent water freezing in fire bucket, **6**, 2–3.
California—
area, land tillable and per cent under cultivation, **25**, 3.
Capay Valley, injury to almonds by birds, **7**, 4.
date growing and distribution, note, **30**, 1.
navel-orange industry, **30**, 1.
production of dried fruits, **26**, 4.
southern, growing Egyptian cotton, **2**, 3.
Calves—
feeding and care, cost, **36**, 3.
feeding with sour skim milk, **49**, 4.
slaughter increase, price, etc., **47**, 3–4.
slaughtered under Federal meat inspection, February, 1914, **40**, 1.
Canada—
exports of cattle, meats, and meat food products to United States, October and November, 1913, **23**, 4.
potato powdery scab prevalence, **36**, 1.
thistle, eradication, method, **6**, 4.
thistle, salting as method of eradication, management, **6**, 4.
thistle, spread in Rocky Mountain States, eradication methods, **6**, 4.
Canal Zone, seismological observations, importance, discussion, **26**, 4.
Candling eggs, directions for making outfit, etc., **46**, 1.
Canned—
fruits and vegetables, value in winter diet, **14**, 2.
oysters, weight requirements, **11**, 1.
tomatoes, maintenance of quality, warning to canners, **6**, 3.
Canners—
oyster, notice in regard to weight of cans, **11**, 1
tomato, quality of products, warning, **6**, 3.
Canning—
corn, on and off the cob, **50**, 2–3.
powders, warning to housewives, **41**, 4.
Canning club, New Jersey, work, **31**, 3–4.
Canning clubs—
best records in Mississippi, 1914, **40**, 3.
girls', visit to Washington, note, **12**, 3.
girls', work, **12**, 3, 4.
girls, yields of vegetables, etc., **20**, 1–2.
Carbon-bisulphid, fumigation of seed potatoes, directions, preventive of tuber moth, **1**, 1.
Caribbean Sea, need of weather observations, discussion, **26**, 4.
Carnations, growing, work of department, **50**, 2.
Carotin, pigment in milk and butter, **50**, 3, 4.
Catarrh—
poultry, contagious. *See* Roup.
poultry, forms, symptoms, and treatment, **13**, 1–2.
Caterpillar, range, food of skunk, **21**, 4.
Cats, trichinous, disposal of carcasses, **4**, 4.
Cattle—
breeds suitable to South, **34**, 3, 4.
certified, importations for breeding purposes, 1913, list, **38**, 4.
cornstalk disease, notes, **12**, 2.
feed crops, increase in South, **45**, 2.
feeding, methods, **47**, 4.
Hereford, raising in Mississippi, remarks, **20**, 3.
importations for breeding, number and breed certificated, **20**, 2.
imports, February, 1914, **40**, 1.
imports, October and November, 1913, **23**, 4.
increase in value, weight, quality, etc., by tick eradication, **45**, 1–2.
industry, South as field, advantages, etc., **34**, 3–4.
losses, annual, before tick eradicatiton, **45**, 2.
measles, character of disease, danger to man, etc., **8**, 4.
native of South, characteristics, value in beef production, etc., **34**, 3.
pasturing on standing cornstalks, danger, **12**, 2.
prices, June, 1912–1914, **49**, 4.
pure-bred, cooperative sales, management, **33**, 2.
pure-bred, increase in South, **45**, 2.

Cattle—Continued.
quarantine in tick districts, release, **3**, 4.
raising, cost, experiments at Alabama experiment station, **34**, 3.
raising in tick-infested regions, examples, **23**, 1.
shrinkage in transit, conditions affecting, **25**, 3.
shrinkage in transit, investigations, **25**, 1–2.
slaughtered under Federal meat inspection, February, 1914, **40**, 1.
southern, at International Live Stock Show, correction of item in News Letter, **26**, 4.
southern, International Live-stock Exposition, prize winners, etc., **23**, 1.
tick eradication, use of arsenical dips, management and value, **15**, 2–3.
tick quarantine, release of territory, **27**, 3.
tick-infested, inferiority of hides, **1**, 2.
tick-infested, shipping regulations, new, **48**, 4.
ticky, movement from quarantined area, protest, legislation requested, etc., **23**, 1–2.
traders, injury to dairy industry in Northwest, **14**, 3–4.
value increase since tick eradication began, 1906, **45**, 1–2.
Cattlemen, purchase of pure-bred cattle, cooperative plan, **33**, 2.
Celery—
copper accumulation, cause and remedy, **39**, 3–4.
danger from copper, **39**, 3–4.
Cement, use in tree cavities, **52**, 4.
Census, bird, suggestoins, **40**, 1–2.
Cereal investigations, Plant Industry Bureau, scope of work, **11**, 3.
Chicken, manure, value and preservation, **24**, 4.
Chickens—
classes, killing and dressing for market, etc., **17**, 1.
farm prices, May 1, 1913, **43**, 3.
Chicory, eradication method, 8, 4.
Chloro-naptholeum dip, misbranding, action by department, **17**, 3.
Chocolate pop corn, recipe, **12**, 4.
Cholera—
hog, campaign against, **49**, 1–2.
hog, cause, nature, preventive and remedial measures, **26**, 2–3.
hog, combating, methods, work of department, **26**, 2–3.
hog, control method, organization, and cooperation, **49**, 1–2.
hog, cures, alleged, warning against, **43**, 4.
hog, means of transmission, **26**, 3.
hog, symptoms, treatment, preventive measures, etc., **27**, 2–3.
Cimex lectularius. *See* Bedbugs.
Cistern, farm home, management, use of water, etc., **32**, 1.
Citrus fruit—
growing, handling, shipping, etc., **48**, 2–3.
work of department, **50**, 1.
Clover—
bur, winter cover crop for South, **4**, 4.
crimson, seed germination, **52**, 1.
crimson, utilization, **40**, 2–3.
crimson, winter cover crop for South, **4**, 4.
growing, value and use of straw, **31**, 4.
seed, poor, effect on prices, recleaning, etc., work in Wisconsin, **31**, 4.
seed, red, importations, vitality tests by department, **34**, 4.
seed, red, work of department, note, **21**, 3.
seed, white and alsike mixture, adulterant imported, caution, **5**, 1.
sweet. *See* Sweet clover.
use as silage, **44**, 4.
Clubs, corn and canning, best records, Alabama and Mississippi, **40**, 3.
Coal tar, use on silos, **7**, 4.
Codein, ingredient of "Russell's white drops," **4**, 4.
Cold storage, use and value in fruit preservation, **48**, 3.
Colleges—
agricultural, early, establishment, 1850–1859, **37**, 1.
agricultural, practical farmers pioneers in establishment, **37**, 1–2.
agriculture and mechanic arts, disbursements for, 1914, **20**, 2.
Color, milk and butter, pigments causing, **50**, 3–4.
Colorado, area, land tillable and per cent under cultivation, **25**, 3.
Colts, navel ill, cause, preventive measures, etc., **25**, 3–4.
Connecticut—
agricultural experiment station, work on chestnut-bark disease, note, **17**, 4.
area, land tillable and per cent under cultivation, **25**, 3.
Convict labor, State roads, statistics, **52**, 2.
Cooking pork, time required for boiling hams, etc., **23**, 2–3.
Cooperation—
cotton-growing communities, advantages, **22**, 2.
farm laundry work, instance, **39**, 3.
marketing farm products, purpose, remarks by Secretary, **19**, 1.
marketing farm products, recommendations by Secretary, **24**, 1.
marketing lambs, Tennessee, **22**, 3–4.
Cooperative—
farm-land banks, provisions in bills, methods of operation, **29**, 1–2.
producers associations, investigations by Office of Markets, remarks, **3**, 1.
production and marketing, discussion by Charles J. Brand, **24**, 1–3.
Corn—
belt, farm business, studies, **29**, 7–8.
bread, South Carolina, recipe, **33**, 4.
canning, on and off the cob, **50**, 2–3.
clubs, boys', best records, Alabama, 1913, **40**, 3.
clubs, boys', champions, yields of corn, etc., **20**, 1.
clubs, boys', combination with boys' pig clubs on 2-acre plot, plans, **15**, 1.
clubs, boys', visit to Washington, note, **12**, 3.
clubs, boys', work, educational value, etc., **12**, 3.
commercial grades, effect on farmers, **24**, 3.
ear, relation of shape to yield, **27**, 4.
feed for mules, comparison with oats, experiments, **38**, 4.
germination, testing, **31**, 1.
grades, commercial, **24**, 3–4.
grades, hearing, announcement, **9**, 2.
grades, tentative, work of department, **4**, 2.
injury by autumnal frosts, probability, **8**, 1.
meal, special uses, recipes, **33**, 3–4.
meal, substitution for flour, **33**, 4.
meal, use in the home, food value, etc., **13**, 3.
moisture excess, expense in shipping, effect on price, etc., **10**, 4.
northern corn belt, time of planting and harvest, **23**, 2.
rootworm beetle, description, **12**, 3.
rootworm, control measures, **12**, 3.
seed, preparation for planting, **31**, 1.
seed. *See also* Seed corn.
selection for seed, **31**, 1.
silage, feed value, yield, and cutting methods, **44**, 3, 4.
Southern States, time of planting and harvest, **23**, 2.
standards, remarks by Secretary, **16**, 2.
yield, relation of humus in soil, **39**, 1.
yield, relation of shape of ear, **27**, 4.
Corn-meal fish balls, recipe, **13**, 3.
Cornstalk disease, loss of cattle in Mississippi Valley, notes, **12**, 2.
Corrosive sublimate, use against bedbugs, **15**, 4.
Cotton—
bleaching qualities, tests of different grades, **17**, 3.
boll weevil, description, confusion with bollworm, **11**, 1–2.
bollworm, description, confusion with boll weevil, **11**, 1–2.
close planting and thinning as means of boll weevil control, **47**, 2–3.
close spacing, use and value in crop increase, **47**, 2–3.
culture, new system, **31**, 4.
culture, new system, correction of statement in No. 31, **34**, 2.
early planted, damage by boll weevil, comparison with late planted, **25**, 4.
early planting, advantages, note, **31**, 4.
Egyptian, growing in Arizona and California, **21**, 3.
growers, losses from malarial mosquito, experiments in Louisiana, etc., **35**, 1–2.
growing improved varieties, advantages, money value, **22**, 1–2.
handling and marketing, transfer of work to Office of Markets, **1**, 3.
imported Egyptian, danger from pink bollworm, **39**, 4.
late planted, damage by boll weevil, experiments, **25**, 4.
long-staple, production in America, discussion, **32**, 3.
production, increase, methods, etc., **47**, 2–3.
seed, imported Egyptian, burning at mills, warning by Federal Horticultural Board, **39**, 4.

Cotton—Continued.
seed, infested by pink bollworm, importation, interception, **34**, 2.
selection, improved methods, note, **34**, 2.
standardization, need, remarks by Secretary, **19**, 1.
standards, remarks of Secretary, **16**, 2.
tensile strength, tests of different grades, **17**, 3.
tests of waste, tensile strength and bleaching qualities, different grades, **17**, 3–4.
thinning, improved method, **31**, 4.
vegetative branches, suppression as means of crop increase, **47**, 2–3.
waste, tests of different grades, **17**, 3.
wilt resistant, breeding, demand, etc., **11**, 2.
Cotton-breeding and Crop Acclimatization Investigations, Office, work, **22**, 1–2.
Cottons, Upland long-staple, spinning tests, **49**, 4.
Country life, school for leadership, establishment, and purpose, **4**, 4.
"County advisers," duties, **35**, 3–4.
Cover crops, winter, for South, **4**, 3–4.
Cow, dairy, cost of raising, **36**, 2–3.
Cowpea—
salad, recipe, **13**, 4.
sandwich filling, recipe, **13**, 3.
Cowpeas—
baked, recipe, **13**, 4.
disease-resistant, breeding work, **11**, 2.
use as silage, **44**, 4.
use in the home, food value, preparation, etc., **13**, 3–4.
Cows—
feeding, silage, directions, **42**, 2–3.
feeding wild onions, experiments, **37**, 2–3.
prices, June 1912–1914, **49**, 4.
Cream—
grading, advantages to creameries and patrons, **11**, 3.
grading, basis, **11**, 3–4.
quality delivered to creameries, investigation, **11**, 3–4.
quality, relation of quality of butter, **11**, 3–4.
wafers, adulterated, seizure under Federal food and drugs act, **12**, 4.
Creameries, spring preparation, **39**, 3.
Creamery promoters, injury to industry in Northwest, **14**, 3–4.
Credit—
farm, important rules for borrowing money, **45**, 1.
long-time loans, amortization tables, **51**, 2–3.
Crimson clover—
seed, germination, **52**, 1.
utilization, **40**, 2–3.
value as food and fertilizer, **40**, 2.
winter cover crop for South, **4**, 4.
Crop—
Acclimatization and Cotton Breeding Investigations, Office, work, **22**, 1–2.
conditions, August, 1913, estimated yields, increases, and quality, general review, etc., **2**, 3.
correspondents, voluntary, suggestions, **23**, 2.
news, data furnished by telegraph and mail, **14**, 1.
news, forwarding by telegraph, plans, advantages, etc., **5**, 1.
news service, telegraphic extension, **14**, 1.
Physiology and Breeding Investigations, Office, work, **22**, 2.
production, work of department, review by Secretary, **19**, 3.
reports, preparation, difficulties, **33**, 2.
rotation, hog raising in corn belt, suggestions, **34**, 4.
rotation, value in control of corn rootworm, **12**, 3.
statistics, report of aids to county correspondents and State statistical agents, status, etc., **21**, 2–3.
Crops—
damage from weather, note, **19**, 4.
increase by good roads, **51**, 4.
outlook, remarks by Secretary, **19**, 3.
suitable for grub-infested land, **7**, 3.
suitable to particular localities, investigations, **22**, 1–2.
suitable to particular localities, investigations, work of department, **21**, 3.
"Crown animal spray," misbranding, action by department, **17**, 3.
"Cut-over" lands, South, utilization for cattle raising, suggestions, **34**, 3.

Dairy cow—
cost of raising, **36**, 2–3.
silage as feed, **42**, 2–3.
Dairy farm, building up under improved methods, Virginia, **36**, 4.
Dairying—
improved methods in South, results, **36**, 4.
Northwest, suggestions, **14**, 3–4.
Dandelion, eradication, method, **8**, 4.
Date—
gardens, establishment, location, work of department, etc., **22**, 2.
industry, United States, note, **30**, 1.
Delaware, area, land tillable and per cent under cultivation, **25**, 3.
Denmark, cooperative abattoirs, practices, **23**, 3.
Devon cattle, raising for beef, advantages, **34**, 4.
Diet, winter, value of canned fruits and vegetables, **14**, 2.
Dips—
arsenical, use in tick eradication, management, etc., **15**, 2–3.
cattle and sheep, regulations, new, **48**, 4.
Directory—
department, **14**, 4; **15**, 4; **22**, 4; **23**, 4; **30**, 4.
Disinfectants, kinds and uses for prevention of navel ill of colts, **25**, 3–4.
Dividends, farm-land national banks, regulations, **29**, 4–5.
Document price list of Superintendent of Documents, **42**, 4.
Documents, Superintendent, price list, **42**, 4.
Dogs—
injury to our mutton supply, **44**, 2–3.
menace to sheep, preventive measures, suggestions, **30**, 4.
protection of sheep against, legislation urged, **47**, 1–2.
trichinous, disposal of carcasses, **4**, 4.
Domestic science, home classes, courses, etc., **52**, 1, 3.
Doughnuts, Indian-meal, recipe, **33**, 4.
Drags, use on earth roads, construction, etc., **12**, 1–2.
Dried fruits—
food use, cost, value, etc., **26**, 4.
food value, production in United States, etc., **26**, 4.
place in diet, **26**, 4.
Drought—
and Alkali-resistant Plant Investigations, Office, work, **21**, 3–4.
Western States, extent, effect on corn crop, etc., **3**, 2–3.
Drug-plant Investigations, Office, work, **21**, 4.
Drugs—
guaranty legends and serial numbers abolished, notice to manufacturers, **43**, 2–3.
guaranty legends and serial numbers, abolishing, **41**, 1–2.
Dry-land—
Agriculture Investigations, Office, work, **22**, 1.
alfalfa seed, spurious, warning, **13**, 4.
forage crops, seed distribution by department, results, etc., **35**, 4.
Dung tags, effect on price of wool, **38**, 3.

Earth roads—
essays on repair and maintenance, medals offered to children, **7**, 2–3.
See also Roads, earth.
Eastman apple, development for upper Mississippi Valley, value, **18**, 3.
Education—
agriculture, demand, facilities, etc., **13**, 2–3.
boys', plan for cooperation of corn and pig clubs as means, **15**, 1.
Ohio, high schools giving courses in agriculture, **7**, 4.
value in farming, **28**, 2–3.
Eelworm, onion, occurrence, control measures, **9**, 3–4.
"Egg powder," nature and composition, substitute for eggs, etc., **29**, 8.
"Egg substitute," nature and composition, **29**, 8.
Eggs—
farm prices, May 1, 1913, 1914, **43**, 3.
incubator, marketing, objections, **36**, 2.
infertile, superiority for marketing, **46**, 1.
market, injury by addition of incubator eggs, **36**, 2.
marketing by parcel post, **46**, 1–2.
parcel-post marketing, experiments, **24**, 2.
preserving, directions, **46**, 1.
Egypt, pink bollworm of cotton, prevalence, **34**, 2.
Egyptian cotton—
growing in Arizona and California, **21**, 3.
seed, imported, danger from pink bollworm, **39**, 4.
Electricity, use in plant growth, investigations, note, **21**, 4.
Essays by children on repair and maintenance of earth roads, medals offered, **7**, 2–3.
Europe, road improvement, remarks, **3**, 3–4.
Experiment Stations—
establishment, **37**, 2.
scientific work, original researches, etc., **37**, 2.

Experiment Stations—Continued.
State, cooperation with Government work, extension, remarks by Secretary, **19**, 2.
State reports, **17**, 4.
State reports, **18**, 3–4.
Experimental—
Farm, Arlington, location, equipment, work, etc., **30** 1–2.
Gardens and Grounds, Office, work, **30**, 2.
Extension, agricultural, act—
maximum amounts for States, **43**, 1.
request to Governors to put into effect, **42**, 2.

Factory whitewash, formula, **37**, 3–4.
Farm—
buildings, causes of fires, **8**, 3.
bureau, cooperation of farmers, **43**, 4.
cost accounting, purpose, value, suggestions, etc., **39**, 2–3.
credit, amortization tables for long-time loans, **51**, 2–3.
credit, important rules for borrowing money, **45**, 1.
expenses, distribution, **29**, 7.
management, corn belt, studies, **29**, 7–8.
products, market standards, need of knowledge by producer, **24**, 2.
products, prices, relation of good roads, examples, **2**, 1.
system for corn belt, **34**, 4.
women, help by department, plans, **19**, 2.
women, status, investigations, **19**, 2.
workers, home classes in farming and domestic science, **52**, 1, 3.
Farmers—
assistance from Bureau of Plant Industry, different fields, **9**, 1–2.
Bulletins, explanation of contents on title page, advantages, **28**, 3.
cooperation with farm bureau, **43**, 4.
cooperative laundry, first, location, charges, receipts, etc., **39**, 3.
income, relation of education, **28**, 2–3.
institutes, growth, popularity, etc., **20**, 4.
lamb clubs, Tennessee, purpose, methods, etc., **22**, 3–4.
profits from hen manure, management, **24**, 4.
purchase of pure-bred cattle, cooperative plan, **33**, 2.
receipt of crop news by telegraph, plans, advantages, etc., **5**, 1.
use of facilities of department, **30**, 1–2.
use of facilities of department, **48**, 2–3.
use of facilities of department, **50**, 1–2.
use of facilities of department, suggestions, **21**, 3–4.
Farmhouse—
economic considerations, improvements, discussion, **26**, 1–2.
plan for inexpensive, **28**, 1–2.
Farmhouses, construction, discussion, **26**, 1–2.
Farming—
area and percentage of tillable land under cultivation in United States, **25**, 2–3.
business methods, value, **28**, 2–3.
business, profits, discussion, studies, etc., **29**, 7–8.
cooperative production, need, preliminary work by department, plans, **24**, 1.
day's work for various operations, **10**, 3–4.
one-man acreage wheat growing, distribution of labor, **14**, 1–2.
principles, **8**, 1.
profit factors, **40**, 4.
type, relation to income, **29**, 7–8.
Farm-land national banks—
bill for establishment, summary, **29**, 1–6.
bill, purpose, **29**, 1.
officers, duties, requirements, etc., **29**, 2.
provisions in bill, methods of operation, **29**, 1–2.
Farms—
depopulation, discussion by International Congress of Agriculture, **20**, 4.
highly profitable, classes, percentage, locations, etc., **39**, 2–3.
profits, relation of size, **28**, 3.
southern, spring preparation, suggestions, **27**, 1.
Fat—
bad flavors, elimination, directions, **23**, 3.
burned, elimination of flavor with raw potatoes, **23**, 3.
"trying out," directions, **23**, 3.
Feed—
dairy cows, value of silage, **42**, 2–3.
horse, danger of crimson clover heads, **40**, 2.
meal, adulterated, fine of shippers, **14**, 4.
Feed—Continued.
misbranding, case against Mountain City Milling Co., fine, etc., **6**, 4.
value of corn for mules, experiments, **38**, 4.
value of crimson clover hay, **40**, 2.
Feeds, dairy, economy of growing on farm, **36**, 3.
Feedstuffs, surplus in Northwest, conversion into dairy products, suggestions, **14**, 3–4.
Fences, poultry, suggestions, **38**, 3.
Fertilizer—
hen manure, value, preservation, and use, **24**, 4.
straw, value, **31**, 4.
value of crimson clover, equivalent in manure, **40**, 2.
Fertilizers, fish refuse, industry of Atlantic coast, **27**, 2.
Fertilizing material, waste in country slaughter of food animals, **23**, 3.
Feterita, dry-land forage crop, value, demand for seed, etc., **35**, 4.
Fines, violations of quarantine and 28-hour laws, **36**, 4.
Fire breaks, forest, grazing by Angora goats, **40**, 4.
Fire bucket, description, location, value in rural district, etc., **6**, 2–3.
Fire, farm buildings, preventive measures, **6**, 2–3.
Fires—
farm buildings, causes, **8**, 3.
forest, prevention, cooperation of Government with States, **51**, 2.
Fish oil, output of Atlantic coast industry, **27**, 2.
"Fish oil soap," misbranding, **33**, 1.
Fish-balls, corn-meal, recipe, **33**, 4.
Fish-scrap—
fertilizer, value, demand, etc., **27**, 2.
industry, Atlantic coast, **27**, 2.
Fisk, Floyd E., report on corn crop, **14**, 2.
Fleece—
Angora goat, average length and weight, **40**, 4.
"skirting," advantages, **34**, 1.
Fleeces, American, poor handling, effect on prices, suggestions, etc., **38**, 3–4.
Floods—
forecasts, work of Weather Bureau, methods, **27**, 2.
Ohio Valley, losses, etc., **7**, 4.
Floriculture, work of department, **50**, 2.
Florida—
agricultural experiment station, report, **17**, 4.
area, land tillable and per cent under cultivation, **25**, 3.
Florists invited to send inquiries to department, **50**, 2.
Fly, house, dangerous character, **30**, 4.
Foal. *See* Colt.
Food—
and drugs act, purpose, usefulness, etc., remarks by Carl L. Alsberg, **6**, 1.
animals, slaughter, fertilizer material available, United States, **23**, 3.
dried fruits, cost and value, **26**, 4.
guaranty legends and serial numbers abolished, notice to manufacturers, **43**, 2–3.
inspection decision, abolishing guaranty legend and serial number, **41**, 1–2.
inspection decision, wine, **47**, 1.
packages, marking contents and weight, tolerances permitted, **42**, 1.
Foods, guaranty legend and serial numbers, abolishing, **41**, 1–2.
Forage—
Crop Investigations, Office, work, **21**, 3.
crops for sheep, **30**, 3–4.
crops, value in pig raising, kinds suitable, etc., **29**, 8.
growing legumes with nonleguminous plants, experiments, beneficial results, **24**, 4.
poisoning, horses. *See* Blind staggers.
value of sweet clover, **39**, 2.
Forecasts—
storms, frosts, and floods, work of Weather Bureau, methods, **27**, 1–2.
weather, method of making, **38**, 1–2.
weather, wireless, for Great Lakes, **45**, 4.
Forest—
fires prevention, cooperation of Government with States, **51**, 2.
lands, eastern, purchase by Government, purpose, etc., **2**, 1–2.
Pathology Investigations, Office, assistance to timber owners, **9**, 2.
reserves, water power, development, policy, **4**, 1–2.

Forests—
National, administration, remarks by Secretary, 19, 2–3.
National, receipts, 1913, distribution, etc., 3, 2.
National, sources of income, 3, 2.
Foreword, 1, 1.
Frosts—
autumnal, in corn belt, probability of injury to crop, 8, 1.
forecasts, work of Weather Bureau, methods, 27, 2.
Fruit—
adaptability, identification, growing methods, improvement, handling, shipping, etc., studies, 48, 2–3.
Disease Investigations, Office, work for farmer, 9, 1–2.
fly, Mediterranean, danger of introduction on fruits and vegetables, 4, 3.
fly, Mexican, danger of introduction on imported fruits, 4, 3.
growers, aid from Plant Industry experiments, 30, 1–2.
growers, aid from Plant Industry experiments, 48, 2–3.
juices, alcohol content, labeling, decision, September, 1914, 46, 2–3.
juices, preparation, methods, studies, 50, 1.
precooling, shipping, and storage, methods, etc., studies, 48, 2–3.
Fruits—
canned, value in winter diet, 14, 2.
dried, food value, place in diet, etc., 26, 4.
dried. *See also* Dried fruits.
naming correctly, efforts of department, suggestions, etc., 25, 4.
new introductions, promising, 30, 1.
Fumigation—
brimstone, bedbug eradication, 15, 4.
seed potatoes, against tuber moth, 1, 1.
Fungi, collection of Plant Industry Bureau, 9, 1.
Fungicides—
legend and serial numbers abolished, 49, 3.
misbranding, notices of judgments issued, 18, 2
shippers, notices of judgments, 33, 1.
Fungus, powdery scab, injury to potatoes, and persistence in soil, 36, 1, 2.

Garden and canning clubs, girls', champions, work, etc., 20, 2.
Gardeners—
aid from Plant Industry experiments, 30, 1–2.
aid from Plant Industry experiments, 48, 2–3.
Gay, James L., appointment on Army Remount Committee, 4, 4.
Georgia—
area, land tillable and per cent under cultivation, 25, 3.
Brooks County, bacon and live-stock production, 39, 4.
Germany, potato growing, benefits, 20, 3.
Giant stock pod bean, claims by advertisers, tests by department, etc., 18, 2.
Ginseng, investigations, note, 1, 2.
Girls' and boys'—
potato clubs, champions, products grown, and cost, 20, 2.
poultry clubs, inauguration in Virginia, work, etc., 15, 1–2.
Girls' canning clubs—
best records, Mississippi, 1914, 40, 3.
champions, work, etc., 20, 1–2.
visit to Washington, note, 12, 3.
work, 12, 3, 4.
work, education value, note, 12, 4.
Girls' Garden and Canning Club, New Jersey, work, 31, 3–4.
Glanders, vaccine, not satisfactory, 41, 4.
Goat, Angora, raising, profitable in America, 40, 3–4.
Goats slaughtered under Federal meat inspection, February, 1914, 40, 1.
Good-roads movement—
work, review by Secretary, 19, 2–3.
work, suggestions, etc., discussion by Secretary, 19, 2–3.
Governors, requested to put Smith-Lever law into effect, 42, 2.
Grain crops, increased production in Europe, 18, 4.
Grain, "stubbling in," objections and advantages, 34, 1–2.
Grape growers, American, hearing, announcement, 11, 1.
Grapes—
absorption of foul gases, 6, 4.
vinifera, experiments, 50, 1.
Grass seeds, adulteration and misbranding, tests, and lists of firms, 44, 1–2.
Grasshopper, food of skunk, 21, 4.
Great Britain, meat consumption per capita, 35, 4.
Great Lakes, wireless weather forecasts, 45, 4.
Green manure, value of sweet clover, 39, 2.
Grimm alfalfa—
origin, value, etc., 13, 4.
seed, spurious, warning, 13, 4.
seed, value for cold regions, 13, 4.
Grub-infested fields, value of hogs, 7, 3.
Grubs—
May beetle, extermination, 7, 3.
white, breeding places of different species, notes, 7, 3.
Guaranties not to be used, notice to manufacturers, 43, 2–3.
Guaranty legend, abolishing, 41, 1–2.

Hairy vetch—
growing, seed selection and inoculation, 1, 1–2.
winter cover crop for South, 4, 4.
Hams, boiling, time required, 23, 2–3.
Harvest, world's wheat crop, percentage by months, 3, 1–2.
Hatch Act, 1887, history and result, 37, 2.
Hauling, cost, relation to condition of road, 30, 2.
Hay—
crimson clover, feed value and fertilizer value, 40, 2.
crop, alfalfa versus other, work of South Carolina experiment station, 18, 4.
crops, growing legumes with nonleguminous plants, experiments, beneficial results, etc., 24, 4.
sweet clover, value, 39, 2.
Health protection, inadequacy, need, suggestions, 6, 1–2.
Heifer, dairy, cost for one-year and two-year periods, 36, 3.
Heiner, John, display of Weekly News Letter at post office, method, remarks, 14, 2.
Hen manure, value and preservation, 24, 4.
Hereford cattle, raising for beef, advantages, 34, 4.
Hessian fly—
control studies, request to farmers by department, 48, 3–4.
wheat infestation, investigation by department, method, etc., 48, 3–4.
Hides, tick-infested cattle, inferiority, 1, 2.
Highway data, State laws, dates of passage, mileage of roads, cost, etc., 52, 2.
Hog cholera—
combating methods, work of department, 26, 2–3.
See also Cholera, hog.
Hog raising—
"don'ts" 28, 4.
grazing, importance in profitable production, 18, 4.
in corn belt, farm system, suggestions, 34, 4.
infestation with trichinæ, percentage, 23, 2.
pasturing on grub-infested fields, advantages, 7, 3.
prices, June, 1912–1914, 49, 4.
profitable production, suggestions, 18, 4.
raising, suggestions by department, 28, 4.
sérum-treated, shipment, regulations, new, 48, 4.
sick, per cent affected with cholera, 27, 2–3.
winter pasture crops, 16, 4.
See also Pigs.
Home—
classes, farming and domestic science, courses, etc., 52, 1, 3.
farm, sanitary system, 32, 1–3.
work for agricultural students, Massachusetts plan, 45, 4.
Homesteads, Alaska, requirements, acreage, etc., 27, 3.
"Hopping John," recipe, 13, 4.
Horse feed, danger of crimson-clover heads, 40, 2.
Horses—
blind staggers, prevalence, control measures, etc., 31, 2–3.
breeding, importations, 1913, list by breeds, 41, 3.
prices, May–June, 1912–1914, 49, 4.
treatment for bots, 5, 4.
Horticultural and Pomological Investigations, Office—
aid to farmers, 50, 1–2.
work, 48, 2–3.
Household expenses, economy in, use of canned fruits and vegetables, 14, 2.
Housewives—
importance of kitchen arrangement, 26, 1.
letter from department, note, 7, 4.
publications of interest, distribution by department, 14, 2–3.
Houston, David F.—
discussion of problems in marketing farm products, 24, 1.
summary of report as Secretary of Agriculture, 19, 1–4.
Humid sections, irrigation, need, recommendations, work of department, 2, 2.
Humus, relation to productivity of soil, 39, 1.

Idaho, area, land tillable and per cent under cultivation, 25, 3.
Illinois, area, land tillable and per cent under cultivation, 25, 3.

Importation—
animals for breeding, regulations, **17**, 4.
live stock, through quarantine stations, **2**, 1.
Imports—
cattle, meats, and meat food products, October and November, 1913, **23**, 4; February, 1914, **40**, 1.
fruit, plants, and seeds, carriers of injurious insects and diseases, quarantine measures, etc., **4**, 3.
live stock, protection to breeders, **3**, 4.
meat, inspection regulations, **10**, 1–2.
potatoes, **21**, 1.
Incubator eggs, marketing objections, **36**, 2.
Indian pudding, recipe, **33**, 3.
Indiana—
area, land tillable and per cent under cultivation, **25**, 3.
schools, rural consolidated, cost, advantages, etc., **36**, 4.
Indians, aid in methods of agriculture from demonstration garden, Sacaton, Ariz., **22**, 2.
Insecticide—
act, violations, **47**, 4.
cases, fines, **5**, 3.
Insecticides—
adulterated and misbranded, shipping, fines for manufacturers, **47**, 4.
legend and serial numbers abolished, **49**, 3.
misbranded, successful action, **1**, 2.
misbranding, notices of judgment issued, **18**, 2.
misbranding, violations of insecticide act, cases, **17**, 3.
shippers, notices of judgment, **33**, 1.
Insects, destructive, food of skunk, **21**, 4.
Inspection—
foreign meat, regulations, **10**, 1–2.
hog cholera, field and laboratory work, **49**, 2.
Iowa—
agricultural experiment station, work on hogging-down corn, **17**, 4.
area, land tillable and per cent under cultivation, **25**, 3.
Irrigation—
Agriculture, Western, Office, work, **22**, 1.
"beneficial use of water," definition, **22**, 3.
"economical use of water," definition, **22**, 3.
humid sections, recommendations, work of department, **2**, 2.
sewage, experiments in New Jersey, **35**, 4.

Jack bean, new name, value as feed, etc., **18**, 2.
Joint ill, colts, cause and preventive treatment, **25**, 3–4.
Journal of Research, purpose and scope, **1**, 2.
June beetle, grub, distinguishing characteristics, **7**, 3.

Kafir corn, use in the home, food value, etc., **13**, 3–4.
Kansas—
area, land tillable and per cent under cultivation, **25**, 3.
blind staggers in horses, prevalence, control measures, etc., **31**, 2–3.
Kentucky—
agricultural experiment station, work, note, **17**, 4.
area, land tillable and per cent under cultivation, **25**, 3.
blue-grass seed, adulteration and misbranding, **44**, 1–2.
rooster day, **37**, 4.
Kerosene, use against bedbugs, **15**, 4.
Killing turkeys and chickens, directions, **17**, 1.
Kitchen, importance in farmhouse, **26**, 1–2.

Labeling wines, regulations, **11**, 1.
Labor—
cotton growing, effect of malaria on efficiency, **35**, 1.
dairyman, cost in raising dairy cow, **36**, 3.
distribution, summer fallow system of wheat growing on one-man acreage, **14**, 1–2.
farm, day's work for various operations, **10**, 3–4.
relation of supply to farm system in corn belt, discussion, **34**, 4.
Lamb clubs—
farmers', in Tennessee, purpose, methods, etc., **22**, 3–4.
success, note, **30**, 3.
Lambs—
injury from stomach worms, preventive measures, etc., **30**, 3–4.
marketing through farmers' lamb clubs, Tennessee, **22**, 3–4.
prices, June, 1912–1914, **49**, 4.
production on farm, suggestions, **30**, 3–4.
Land—
poor, value of legume crops, **15**, 3.
surveys, difficulties, expense, etc., **27**, 4.
Land—Continued.
tillable area, and per cent under cultivation in United States, **25**, 2–3.
values, relation of good roads, **2**, 1.
Landlords, income from farms, **29**, 7.
Lard, bad flavors, elimination, directions, **23**, 3.
Laundry, farmers' cooperative, first, location, charges, receipts, etc., **39**, 3.
Lawns, protection from army worm, **51**, 1.
Laws—
quarantine and 28-hour, fines for violation, **36**, 4.
road, States, dates of passage, etc., **52**, 2.
violation by railroads, penalty, **46**, 4.
Lead arsenate, misbranding, **33**, 1.
Leaf roll, potato, study by department, **11**, 2.
Legume crops—
importance in maintenance of land fertility, **15**, 3.
nitrogen content of different kinds, **15**, 3.
Legumes—
growing with nonleguminous plants, experiments, benefits, **24**, 4.
winter cover crops for South, **4**, 3–4.
Lewis woodpecker, injury to almonds in California, **7**, 4.
Light-house Board whitewash, formula, **37**, 4.
Lighthouse whitewash, formula, **37**, 4.
Lightning rods, use suggestions, **48**, 1–2.
Live stock—
dipping preparations, regulations, new, **48**, 4.
Exposition, International, exhibit of southern cattle, remarks, **23**, 1.
importation through Government quarantine stations, **2**, 1.
prices, May-June, 1914, **49**, 3–4.
production in Brooks County, Ga., **39**, 4.
pure-bred, protection to breeders, **3**, 4.
quarantine law, violations, **47**, 4.
report, April, suggestions to reporters, **34**, 2–3.
shipment from tick-infested areas, new regulations, **48**, 4.
Loans—
farm-land national banks, conditions, **29**, 2–3.
long-time, amortization tables, **51**, 2–3.
Locust—
borer, control measures, **11**, 4.
timber, cutting, time for destruction of locust borers, **11**, 4.
trees, injury by locust borer, **11**, 4.
Lolo National Forest, timber sales proposed, **3**, 2.
Louisiana, area, land tillable and per cent under cultivation, **25**, 3.

Maine—
area, land tillable and per cent under cultivation, **25**, 3.
Aroostock County, occurrence of powdery scab in potatoes, **35**, 3.
potato powdery scab, prevalence, **36**, 1.
potatoes, Federal quarantine, **40**, 4.
Malaria—
cause of losses to cotton growers, experiments in Louisiana, **35**, 1.
cotton region, effect on efficiency of labor, **35**, 1.
prevalence in cotton region, **35**, 1.
Mango industry, Florida, note, **30**, 1.
Manure—
dairy calf, value for two years, **36**, 3.
fly, dangerous character, **30**, 4.
green, value of sweet clover, **39**, 2.
hen, value and preservation, **24**, 4.
Mares, brood, care before parturition to prevent navel ill of colt, **25**, 3–4.
Market, egg, injury by addition of incubator eggs, **36**, 2.
Market standards, study by producer, need, **24**, 2.
Market surveys, need, **24**, 1–2.
Marketing—
city, studies, suggestions, **24**, 2.
eggs by parcel post, **46**, 1–2.
farm products, discussion by Secretary, **19**, 1.
farm products, problems, methods, etc., discussion, **24**, 1–3.
investigations, remarks of Secretary, **16**, 1–2.
lambs, methods of Farmers' lamb clubs in Tennessee, **22**, 3–4.
milk, care in shipping to reduce bacteria, **46**, 2.
sheep, cooperative, suggestions, **30**, 3.
use of trolley cars, suggestions, **24**, 2.
wool, Australian methods, advantages, **34**, 1.
Markets—
Office of, establishment, scope of work, **1**, 3.
supply from local sources, need, **24**, 2.
Martin, enemy of boll weevil, directions for attracting, **46**, 3.

Maryland, area, land tillable and per cent under cultivation, **25**, 3.
Massachusetts—
agricultural students, plan for home work, **45**, 4.
area, land tillable and per cent under cultivation, **25**, 3.
School of Agriculture, establishment, charter, 1856, **37**, 1.
schools, rural consolidated, cost, advantages, etc., **33**, 4.
May beetle—
combating, methods, **7**, 3.
damage to crops, 1912, **7**, 3.
life cycle, habits, etc., **7**, 3.
Meal—
corn, special uses, recipes, **33**, 3–4.
corn. *See also* Corn meal.
Measles, cattle, character of disease, danger to man, etc., **8**, 4.
Meat animals, country slaughter, waste of fertilizing material, **23**, 3.
Meat consumption per capita—
different nations, **35**, 4.
United States, **35**, 4.
United States and other countries, **14**, 4.
Meat food products, imports, February, 1914, **40**, 1.
Meat—
foreign inspection, investigations, work of department, **19**, 3.
foreign inspection, notice of inefficiency, quarantine, etc., **10**, 1.
imports, bond of consignee, requirements, **10**, 1–2.
imports, certificates required, **10**, 1.
imports, condemned products, disposal, **10**, 2.
imports "inspected and passed," status, **10**, 2.
imports, misbranded, regulations, **10**, 2.
inspection, Federal, animals slaughtered, February, 1914, **40**, 1.
inspection, foreign, purpose, **1**, 3.
inspection foreign, regulations, **10**, 1–2.
production, conditions, committee for investigation, **22**, 2.
regulation, foreign, establishment, **10**, 1–2.
seizure under food and drugs act, **1**, 3.
Meats—
and meat food products, imports, October and November, 1913, **23**, 4.
condemned imports, October and November, 1913, **23**, 4.
imports, February, 1914, **40**, 1.
unwholsome, imports, protection from, object of foreign meat inspection, **1**, 3.
Medals, awards to children submitting essays on repair and maintenance of earth roads, **7**, 2–3.
Medicine, patent, seizure under Sherley amendment, **2**, 2–3.
Mediterranean fruit fly, danger of introduction on fruits and vegetables, **4**, 3.
Meteorology, study, organizations, methods, etc., remarks, **6**, 3.
"Mexican fruit fly," danger of introduction on imported fruits, **4**, 3.
Mexico, exports of cattle to United States, October and November, 1913, **23**, 4.
Michigan—
Agricultural College, establishment, 1857, **37**, 1.
area, land tillable and per cent under cultivation, **25**, 3.
Migratory birds, protection, regulations proposed, **50**, 3.
Milk—
bottled, care by consumer, **5**, 2.
buying by dealers, stipulations, etc., **7**, 1.
care by consumer, directions, **5**, 2–3.
clean, production, assistance by department, **15**, 3.
color, causes, **50**, 3–4.
flavor, effect of crushed oats, experiments, **20**, 4.
inspection by department, use of bacterial count, **15**, 3.
inspection, expenditures per capita, reports, **15**, 4.
keeping without ice, suggestions, **5**, 2.
management, publications, list, **14**, 3.
market, prices received by shippers to various cities, 1912, **7**, 1–2.
onion flavor, prevention, **37**, 2–3.
pasteurization at low temperatures, advantages, **4**, 2–3.
pasteurizing, cost, **43**, 3–4.
production, cost, work of New Hampshire experiment station, **18**, 3–4.
production, increase after tick eradication, **45**, 2.
retailing, methods to insure even quality, **35**, 3.
selling from large containers, uneven quality, suggestions, **35**, 3.
shipping, precautions to reduce bacteria, **46**, 2.
sour skim, for calves, **49**, 4.
Minnesota, area, land tillable and per cent under cultivation, **25**, 3.
Misbranding—
insecticides and fungicides, notices of judgments issued, **18**, 2.
seeds of Kentucky bluegrass and redtop, tests, etc., **44**, 1–2.
Mississippi, area, land tillable and per cent under cultivation, **25**, 3.
Missouri, area, land tillable and per cent under cultivation, **25**, 3.
Mohair, increase in value, uses, etc., **40**, 3.
Money, borrowing, five important rules, **45**, 1.
Montana—
area, land tillable and per cent under cultivation, **25**, 3.
schools and roads, benefits to be derived from timber sales from Lolo National Forest, **3**, 2.
Morrill Acts, history and results, discussion, **37**, 1.
Mortgages—
farm, provisions in farm-land national banks, **29**, 1–2.
long-term, conditions required by farm-land national banks, **29**, 3.
Mosquito, malarial, description, **35**, 2.
Mosquitoes, cause of losses to cotton growers, experiments in Louisiana, etc., **35**, 1–2.
Moth—
army worm, description, **51**, 1.
potato tuber, warning, **1**, 1.
Mothers' meetings, assistance of visiting rural nurse, **41**, 2.
Mules, feeding, value of corn, experiments, **38**, 4.
Mush, corn-meal, recipe, **33**, 4.
Mutton—
consumption in United States, discussion, **14**, 4.
consumption per capita in United States, and other countries, **14**, 4.
production, demand, marketing, etc., suggestions, **30**, 3–4.
supply, injury by dogs, **44**, 2–3.

Navel ill, colts, cause, preventive measures, etc., **25**, 3–4.
Nebraska, area, land tillable and per cent under cultivation, **25**, 3.
Negro, habits, relation to prevalence of malaria in cotton region, **35**, 2.
Nelson amendment, 1908, passage and effect, **37**, 1–2.
Nevada, area, land tillable and per cent under cultivation, **25**, 3.
New Hampshire—
agricultural experiment station, work on cost of milk production, **18**, 3–4.
area, land tillable, and per cent under cultivation, **25**, 3.
New Jersey, area, land tillable and per cent under cultivation, **25**, 3.
New Mexico, area, land tillable and per cent under cultivation, **25**, 3.
New York, area, land tillable, and per cent under cultivation, **25**, 3.
"Nico-fume liquid"—
misbranding, **33**, 1.
misbranding, fine, **5**, 3.
Nighthawk, enemy of boll weevil, **46**, 3.
Nitrogen-fixing bacteria, inoculation of hairy vetch seed and soil, **1**, 1–2.
Nitrogenous fertilizers, fish scrap, and ammonium sulphate, value, demand, etc., **27**, 2.
North Carolina, area, land tillable, and per cent under cultivation, **25**, 3.
North Dakota, area, land tillable, and per cent under cultivation, **25**, 3.
Northwest, dairying, possibilities, suggestions, **14**, 3–4.
Numbers, serial. *See* Serial number.
Nurse, rural, visiting, duties, etc., test in Chilton County, Ala., **41**, 2–3.
Nuts, growing, studies, **50**, 1.

Oats—
effect on flavor of milk, experiments, **20**, 4.
increased production in Europe, **18**, 4.
Obesity remedies, warning against, **51**, 3–4.
Ochoco National Forest, bark beetle depredations, check by Government, **1**, 3.
Office of Markets—
assistance to cooperative organizations, remarks, **3**, 1.
establishment, scope of work, **1**, 3.
Ohio—
area, land tillable, and per cent under cultivation, **25**, 3.
high schools having courses in agriculture, **7**, 4.

Ohio schools, rural consolidated, cost, advantages, etc., **36**, 4.
Ohio Valley floods, 1913, losses, etc., **7**, 4.
25, 3.
Oil, fish, output of Atlantic coast industry, **27**, 2.
Oklahoma, area, land tillable, and per cent under cultivation,
Omphalophlebitis, colts, cause and preventive measures, **25**, 3–4.
Onion—
wild, bulblets separating from wheat seeds, **37**, 3.
wild, control in pastures, wheat, etc., **37**, 3.
Onion eelworm. *See* Eelworm.
Onion nematode. *See* Eelworm.
Onions—
infestation with eelworm, appearance, damage, etc., **9**, 3–4.
wild, control in cultivated crops, implements used, **37**, 3.
wild, effect on milk flavor, experiments, **37**, 2–3.
Orange, seedless, industry in California, **30**, 1.
Orchard grass seed, importation of low-grade, caution, **5**, 4.
Oregon, area, land tillable, and per cent under cultivation, **25**, 3.
Oriole, enemy of boll weevil, **46**, 3.
Oyster canners, notice in regard to weight of cans, **11**, 1.
Oysters, canned, weight requirements, **11**, 1.

Packages, food, marking contents and weight, tolerances permitted, **42**, 1.
Packing eggs for parcel post, **46**, 1–2.
Paint. *See* Whitewash.
Panama Canal, opening, preparations of Weather Bureau, recommendations, **26**, 4.
Pancakes, corn-meal, recipe, **33**, 3.
Parcel post, eggs, marketing, candling, packing, etc., **46**, 1–2.
Parcel-post marketing, farm products, need of standards, **24**, 2.
Paris green mixture for control of army worm, **51**, 1.
Pasteurization, milk, advantages of low temperatures, **4**, 2–3.
Pasteurizing milk, cost, **43**, 3–4.
Pasture crops, winter, for hogs, **16**, 4.
Pastures—
wild onion eradication, **37**, 3.
winter, for hogs, **18**, 4.
Patent medicine—
seizure under Sherley amendment, **2**, 2–3.
vendors, scheme, warning, **16**, 3–4.
Pathological collections and Inspection Work, Office, work for farmer, **9**, 1
Pea, Shanon, claims by advertisers, tests by department, etc., **18**, 1–2.
Peach stock, hardy, introduction from China, value, etc., **30**, 1.
Peanuts, uses, investigations, **50**, 2.
Peas, field, drought-resistant varieties, distribution of seed by department, value, etc., **35**, 4.
Pecan growing, study, **50**, 1.
Pecans, new varieties, merits, **18**, 3.
Pedigree certificates, imported live-stock, work of department, **3**, 4.
Pennsylvania—
area, land tillable, and per cent under cultivation, **25**, 3.
Farmers' High School, establishment, 1854, **37**, 1.
Persimmon—
improved variety, introduction, **30**, 1.
improvement, notes, **30**, 1.
Petroleum oil—
use against bedbugs, **15**, 4.
use as adulterant of cream wafers, **12**, 4.
Pig clubs—
boys', combination with boys' corn clubs on two-acre plot, plans, **15**, 1.
purpose and scope, **13**, 4.
Pigments, milk and butter colors, **50**, 3–4.
Pigs, raising, value of forage crops, **29**, 8.
Pink bollworm—
danger from imported Egyption cotton, **39**, 4.
danger of importation, **34**, 2.
infestation of shipment of cotton seed from Egypt, **34**, 2.
introduction of imported cotton seed, **4**, 3.
Pioneers in agricultural education, practical farmers, **37**, 1–2.
Planets, relation to weather, discussion, **45**, 3–4.
Plank drag, construction, use on earth roads, etc., **12**, 2.
Plant diseases, control, assistance to farmers by Plant Industry Bureau, **9**, 1–2.
Plant Industry Bureau—
assistance in control of crop diseases, **11**, 2–3.
assistance to farmer in control of crop diseases, **9**, 1–2.
lines of work, **21**, 3–4.
work, value to fruit growers and gardeners, **30**, 1–2.
Plant Industry Bureau—Continued.
work, value to fruit growers, gardeners, and shippers, **48**, 2–3.
Plant Pathology laboratory, work for farmer, **9**, 1.
Plantains, eradication, method, **8**, 4.
Plow, disk, value for deep breaking, **27**, 1.
Plowing—
deep, for southern farms, need, **27**, 1.
fall and spring, suggestions, **8**, 1.
grub-infested land, time and method, **7**, 3.
Plumbing, farm home, suggestions, **32**, 2.
Poison, use in control of army worm, **51**, 1.
Pop corn—
balls, recipe, **12**, 4.
confections, recipes, **12**, 4.
growing for market, profits, preparation, etc., **12**, 4.
value as food, preparation, etc., **12**, 4.
Pork—
cooking, directions, **23**, 2–3.
tapeworm, transmission to man, danger, **8**, 4.
use of uncooked, danger, **23**, 2.
Potato—
canker, danger of introduction on imports, object of quarantine, **8**, 3.
clubs, boys' and girls', champions, products grown, and cost, **20**, 2.
culls, utilization for home manufacture of starch, directions, **16**, 4.
diseases, introduction with imports, danger, **21**, 2.
growing, benefits to soil, **20**, 3.
growing, experiments and studies, **50**, 2.
growing, quality of seed, relation to yield, **35**, 2.
leaf roll, study by department, **11**, 2.
powdery scab, description, distribution and control, **36**, 1–2.
quarantine, countries affected, **23**, 1.
quarantine, hearing, announcement, **18**, 1.
quarantine, summary of evidence at hearing, **21**, 2.
seed production, hill-selection method, **35**, 2–3.
seed production, tuber-unit method, **35**, 2.
tuber moth, warning, **1**, 1.
"Potato wart"—
danger of introduction on imports, **4**, 3.
danger of introduction on imports, object of quarantine, **8**, 3.
Potatoes—
drying before shipping, practices in Germany, **10**, 4.
European, infection with potato scab, **36**, 1.
farm prices, December to March, five-year period, **25**, 1.
farm prices, increase, 1914, **45**, 4.
foreign grown, quarantine, object. etc., **8**, 3.
foreign, quarantine decision, **21**, 1.
holding by producers, effect on prices, etc., **25**, 1.
importation, conditions which should govern, **21**, 1.
importation, regulations, **23**, 1.
importation, requirements, **21**, 1.
importations, per cent of consumption, etc., **21**, 1.
imports, danger from "potato wart" disease, **4**, 3.
imports, quarantine of different countries, **16**, 3.
improved varieties, need, suggestions, etc., **22**, 3.
Maine Federal quarantine, **40**, 4.
Maine quarantine regulation, violation, warning to buyers, etc., **38**, 2.
powdery scab, danger of introduction, **18**, 1.
powdery scab disease, nature, spread, and danger of introduction, **21**, 2.
powdery scab, ocurrence in Maine, caution, **35**, 3.
powdery scab, sulphur dust for control, **43**, 4.
production of good seed, **35**, 2–3.
production, stocks held by producers and dealers, five-year period, **25**, 1.
restrictions on importation, hearing for consideration, **18**, 1.
"scabby," objections of American consumers, **36**, 1.
seed, certified, association, **41**, 4.
seed, fumigation against tuber moth, **1**, 1.
seed, purchase of Maine grown, caution, **35**, 3.
seed, warning against diseased stock from Maine, **38**, 2.
Poultry—
clubs, boys' and girls' inauguration in Virginia, work, etc., **15**, 1–2.
dressed, selection, **17**, 1.
forage, number birds to acre, **38**, 3.
houses, location, management, etc., **38**, 2–3.
killing and dressing for market, **17**, 1.
live, selection, **17**, 1.

Poultry—Continued.
management, publications, list, **14**, 3.
raisers, purchase of new stock, danger of disease, suggestions, **13**, 1–2.
raising, colony method, **38**, 2.
raising, "intensive" method, **38**, 2.
raising, methods, **38**, 2–3.
Poultrymen, profits from hen manure, management, **24**, 4.
Powders, preserving and canning, warning to housewives, **41**, 4.
Powdery scab—
danger from foreign potatoes, **18**, 1.
potato, description, distribution, and control, **36**, 1–2.
potatoes, description, danger of introduction, warning, **16**, 3.
potatoes, occurrence in Maine, caution, **35**, 3.
Precipitation, measuring on farm, directions, **31**, 1–2.
Precooling fruit, methods, materials, etc., studies, **48**, 2, 3.
Prescription frauds, warning, **16**, 3–4.
Preserving eggs, directions, **46**, 1.
Preserving powders, warning to housewives, **41**, 4.
Profit in farming, factors, **40**, 4.
Publication, Weekly News Letter, purpose, **1**, 1.
Publications—
at cost, from Government, **42**, 3–4.
changes, purpose, note, **19**, 2.
departemnt, changes, advantages, etc., **1**, 2.
department, recent, list, April, 1914, **37**, 4.
department, recent, list, May, 1914, **41**, 3.
department, recent, list, July, 1914, **50**, 4.
issued, **8**, 4.
issued by department, **18**, 4.
list for farm women, distribution by department, **14**, 2–3.
new, issue of August, 1913, **4**, 3.
November issue, partial list, **20**, 3.
October, 1913, issue, **14**, 3.
partial list of recent issues, **32**, 3–4.
recent, for distribution, list, June 24, 1914, **46**, 3.
Service and Regulatory Announcements, new series, object, **27**, 4.
week ending August 26, 1913, **5**, 3.
Pudding—
corn-meal and apple, recipe, **33**, 4.
corn-meal and fig, recipe, **33**, 3–4.
Indian, recipe, **33**, 3.
Pyosepticemia of the newly born, colt disease, cause and preventive measures, **25**, 3–4.

Quarantine—
against imports of fruit, plants, and seeds, purpose, etc., **4**, 3.
cattle, in tick districts, release, **3**, 4.
Maine potatoes, **40**, 4.
potato, countries affected, **23**, 1.
potato, hearing, **18**, 1.
station, port of Baltimore, equipment, advantages, etc., **2**, 1.
Quarantine law—
live-stock, violations, fines for railroads, **47**, 4.
violations by railroads, fines, etc., **46**, 4.
violations, fines, **36**, 4.

Radioactive waters, fraudulent, warning, **8**, 2–3.
Railroads—
fine for violation of quarantine and 28-hour laws, **46**, 4.
fines for violations of live-stock quarantine law, **47**, 4.
fines for violation of 28-hour law, **47**, 4.
Rainfall—
measuring on farm, direction, **31**, 1–2.
one inch, meaning for farmers, for filling cisterns, etc., **12**, 3.
quantitative value, data, **12**, 3.
Range caterpillar, food of skunk, **21**, 4.
Red clover seed, work of department, note, **21**, 3.
Red top seed, adulteration and misbranding, tests, results, **44**, 1–2.
Refrigeration, fruit, methods, materials, etc., **48**, 3.
"Rexo dip," misbranding, **33**, 1.
Rhode Island, area, land tillable and per cent under cultivation, **25**, 3.
Rice growing, effect of malaria on efficiency of labor, **35**, 1.
Road—
conditions, relation to school attendance, **36**, 3–4.
conditions, study by department, **46**, 4.
Road—Continued.
grades, relation to distance, explanation, **30**, 2.
improvement effect on agricultural output, **51**, 4.
Road building—
funds, waste, **3**, 3–4.
sand clay, directions, **17**, 2.
steep grades, disadvantages, **18**, 2–3.
Roads—
bad, injury to school attendance, **36**, 3–4.
benefits from national forest receipts, **3**, 2.
earth, cost and location, **30**, 2–3.
earth, mileage in United States, **12**, 1.
earth, preparation for winter, time, and methods, **12**, 1–2.
earth, sunshine requirements, **30**, 2–3.
earth, value of sand clay, **17**, 2.
expenditures, 1913, **52**, 1, 2.
good, as crop producers, investigations, **51**, 4.
good, factor in land values, **2**, 1.
grading, suggestions, **30**, 2.
maintenance, importance, **3**, 3–4.
quality, factor in values of land and farm products, **2**, 1.
relation to rural schools, **31**, 4.
relocation, as economic measure, **18**, 2–3.
relocation, considerations, note, **30**, 3.
sand-clay, cost of building, **26**, 3.
sand-clay, cost of building in South, remarks, **17**, 2.
sand-clay, time for repairing, **26**, 3.
surfacing with clay, requirements, cost, etc., **26**, 3.
Rooster day, Kentucky and Tennessee, **37**, 4.
Rootworm, western corn, preventive measure, **12**, 3.
Roses—
adornment of home grounds, management, **43**, 1–2.
climbing, pruning, directions, **45**, 2–3.
pruning for cut flowers, directions, **43**, 2.
Roup—
poultry disease, forms, symptoms, and treatment, **13**, 1–2.
poultry, prevention, and eradication, **13**, 1–2.
Rural—
nurse, visiting, duties, etc., test in Chilton County, Ala., **41**, 2.
organization, remarks by Secretary, **16**, 2–3.
sanitation, need, assistance by department, plans, etc., **6**, 1–2.
schools. *See* Schools.
Rural cooperation, remarks by Secretary, **16**, 2.
Rural credits—
discussion by Secretary, **19**, 1–2.
remarks of Secretary, **16**, 1.
"Russell's white drops," seizure, **4**, 4.

Sacks, potato, spread of powdery scab, control by sterilization, **36**, 2.
Salicylic acid, danger of use in food, **41**, 4.
Sand-clay—
mixtures, natural, test, **17**, 2.
roads, construction and maintenance, **26**, 3.
value in road making, **17**, 2.
Sanitary system for farm home, **32**, 1–3.
Sanitation, rural, need, assistance by department, plans, etc., **6**, 1–2.
Saskatchewan, wheat growing, cost, report of commission, **41**, 3.
Scab, powdery—
potatoes, use of sulphur in control, **43**, 4.
See also Powdery scab.
School—
attendance, relation to road conditions, **36**, 3–4.
leadership in country life, establishment and purpose, **4**, 4.
Schools—
benefits from National-forest receipts, **3**, 2.
consolidated rural, status in community, remarks, **31**, 4.
rural, consolidated, advantages, number in United States, etc., **36**, 3–4.
rural, relation of roads, **31**, 4.
Scrapple, corn-meal, recipe, **33**, 4.
Secretary—
recommendations, **19**, 4.
report, summary, **19**, 1–4.
Seed—
alfalfa, requests received by department, remarks, **33**, 3.
and Plant Introduction, Office, work, **30**, 1.
corn germination, testing, **31**, 1.
corn, grading for planting, **31**, 1.
corn, preparation for planting, **31**, 1.
corn, selection, **31**, 1.
corn, shelling, directions, **31**, 1.

Seed—Continued.
cotton. *See* Cotton seed.
crimson clover, germination, **52**, 1.
distribution, discontinuance, remarks of Secretary, **17**, 1–2.
Kentucky bluegrass, adulteration and misbranding tests, etc., **44**, 1–2.
orchard grass, importation of low-grade, caution, **5**, 4.
potatoes, certified, association, **41**, 4.
potatoes, Maine grown, warning against diseased stock, **38**, 2.
potatoes, production, **35**, 2–3.
red clover, importations, vitality tests by department, **34**, 4.
red clover, work of department, note, **21**, 3.
redtop, adulteration and misbranding, tests, etc., **44**, 1–2.
Sudan grass, high prices, cause, suggestions, **17**, 4.
wheat, freeing from wild onion bulblets, **37**, 3.
Seedmen having adulterated grass seeds, list, **44**, 1–2.
Seeds—
drought-resistant crops, distribution by department, **35**, 4.
vegetable, standardizing, work of department, **50**, 2.
Septic—
arthritis of sucklings, colt disease, cause and preventive measures, **25**, 3–4.
tank, management, **32**, 2.
Serial numbers on foods and drugs, abolishing, **41**, 1–2.
Serum—
antihog-cholera, use against hog cholera, results, **26**, 2–3.
antihog-cholera, value as remedy and preventive, **27**, 2–3.
hog cholera, preparation, sale, and importation, regulations, **49**, 2.
protective, for hog cholera, only cure approved by department, **43**, 4.
Serums, veterinary, supervision by department, **9**, 4.
Service and Regulatory Announcements, new series, object, **27**, 4.
Sewage—
disposal, purification, etc., farm home, **32**, 2.
irrigation, experiments in New Jersey, **35**, 4.
Shahon pea, claims by advertisers, tests by department, etc., **18**, 1–2.
Sheep—
breed, selection, importance, **45**, 3.
dipping for scabies, regulations, new, **48**, 4.
industry, United States, discussion, **30**, 3–4.
industry, legislation urged, **47**, 1–2.
industry, United States, value, etc., **47**, 1–2.
injury from stomach worms, preventive measures, etc., **30**, 3–4.
marketing, cooperative, suggestions, **30**, 3.
measle parasite, infestation of dogs, **9**, 3.
measle parasite, occurrence, means of infection, origin, etc., **9**, 3.
prices, June, 1912–1914, **49**, 4.
protection from dogs, **30**, 4.
protection from dogs, legislation urged, **47**, 1–2.
raising, advantages over other live stock, **30**, 3.
raising on farm, suggestions, **30**, 3–4.
slaghtered under Federal meat inspection, February, 1914, **40**, 1.
type, relation to price of wool, remarks, **34**, 1.
Sheep-breeding farms, establishment, legislation urged, **47**, 1–2.
Shippers—.
aid from Plant Industry experiments, **48**, 2–3.
insecticides and fungicides, notices of judgments, **33**, 1.
Shippers, adulterated vinegar, fines imposed, etc., **3**, 1.
Shipping—
cattle, effect on weight, investigations, **25**, 1–2.
farm products, cooperation, suggestions, **24**, 1.
farm products, discriminating practices, **24**, 3.
potatoes and corn, freight on excess moisture, cost in United States, **10**, 4.
"Shirting" wool, application of term, **34**, 1.
Shorthorn cattle, suitability to conditions in South, **34**, 3, 4.
Silage—
making and feeding, **44**, 3–4.
value as feed for dairy cattle, **42**, 2–3.
Silo building, increase under tick eradication conditions, **45**, 2.
Silos—
coating with coal-tar, **7**, 4.
concrete, coating with coal-tar mixture, advantages, **7**, 4.
Skim milk, sour, for calves, **49**, 4.
Skunk—
economic importance, **21**, 4
feeding habits, **21**, 4.
value to agriculture, **21**, 4.
Slaughterhouses. *See* Abattoirs.
Smith-Lever Act—
governors requested to put into effect, **42**, 2.
maximum amounts States will receive, **43**, 1.
Snowfall, measuring on farm, **31**, 2.
Soil, improvement by potato farming **20**, 3.
Soils, productivity, relation of humus, **39**, 1.
Sorghum, seed, dry-land crop, value, etc., **35**, 4.
Sorghums—
use as silage, **44**, 4.
varieties for semiarid lands, investigations, **21**, 3.
South, adaptability to stock farming, **20**, 3.
South Carolina—
agricultural experiment station, report, **18**, 4.
agricultural experiment station, work in alfalfa growing, **18**, 4.
area, land tillable, and per cent under cultivation, **25**, 3.
corn bread, recipe, **33**, 4.
dairying, improved methods, results, **36**, 4.
South Dakota—
area, land tillable, and per cent under cultivation, **25**, 3.
field for cattle raising, advantages, etc., **34**, 3–4.
forage plants for cattle raising, **34**, 3.
winter cover crops, **4**, 3–4.
Sows—
brood, value of forage, **29**, 8.
See also Hogs.
Soy bean, importance in Manchuria, suitability to United States, etc., remarks, **21**, 3.
Soy beans, use as silage, **44**, 4.
Spinning tests, Upland long-staple cotton, **49**, 4.
Split-log drag—
construction, use on roads, etc., **12**, 1–2.
use on earth roads, suggestions for essay, **7**, 3.
Spongospora subterranea, danger of introduction, **18**, 1.
Spraying—
celery to prevent copper accumulation, **39**, 3–4.
for locust borers, directions, **11**, 4.
truck crops, disease control, value to growers, **11**, 2.
Sprays, locust borer, recipes, **11**, 4.
Spring, farm water supply, care, protection, etc., **32**, 2.
Stable fly, dangerous character, **30**, 4.
Stables, pregnant mares, care for prevention of navel ill of colt, **25**, 3–4.
Standardization, commercial products, work of department, **50**, 2.
Starch—
home manufacture from potato culls, directions, **16**, 4.
home production from potato culls, directions, **16**, 4.
Statistics, road building, table, **52**, 2.
Steers, feeding method, **47**, 4.
Sterilization of potato sacks to prevent spread of diseases, **36**, 2.
Stomach worms, injury to lambs, preventive measures, **30**, 3–4.
Storage—
farm products for transportation, studies, needs, discussion, **24**, 2–3.
fruit, method, etc., **48**, 2, 3.
Storms, forecasts, work of Weather Bureau, methods, **27**, 1–2.
"Stramoline," seizure under Sherley amendment, **2**, 2–3.
Straw—
fertilizer value, **31**, 4.
value on farm, uses, etc., **31**, 4.
"Stubbling in" of grain, practices, objections and advantages, **34**, 1–2.
Students, agricultural, home work, Massachusetts plan, **45**, 4.
Sudan grass—
dry-land forage crop, value, demand for seed, etc., **35**, 4.
seed, high prices, cause, suggestions, **17**, 4.
Suet—
bad flavors, elimination with raw potatoes, **23**, 3.
"trying out," directions, **23**, 3.
value in cooking, waste, etc., **23**, 3–4.
Sugar, addition to wine prohibited, **47**, 1.
Sugar-beet investigations, work of department, **11**, 2.
Sugar-cane diseases, investigations, plans, note, **11**, 2.
Sugared pop corn, recipe, **12**, 4.
Sulphur, use against powdery scab of potatoes, **43**, 4.
Surgery, tree, importance, tools, methods, etc., **52**, 3–4.

Swallow, enemy of boll weevil, **46**, 3.
Sweet clover—
value as farm crop, **39**, 2.
value as soil improver, **39**, 2.
value for green manure, **39**, 2.
Sweet-potato diseases, work of department, note, **11**, 2.
Swine—
slaughtered under Federal meat inspection, February, 1914, **40**, 1.
See also Hogs.

Tankage, composition, value as fertilizer, etc., **23**, 3.
Tapeworm, dog, infestation of sheep, **9**, 3.
Tapeworms—
transmission from cattle and hogs to man, development, danger, etc., **8**, 4.
transmission from man to animals, caution, **8**, 4.
"Tarola," misbranding, fine, **5**, 3.
Telegraphic crop news service, extension, **14**, 1.
Tenant house, plans for inexpensive, **28**, 1–2.
Tenants, income from farms, **29**, 7.
Tennessee—
area, land tillable and per cent under cultivation, **25**, 3.
cattle industry, effect of tick eradication, **1**, 2–3.
freedom from cattle ticks, work, **27**, 3.
rooster day, **37**, 4.
Tepary beans, dry-land crop, value, note, **35**, 4.
Texas—
agricultural experiment station, work on beekeeping, **17**, 4.
area, land tillable, and per cent under cultivation, **25**, 3.
Thistle, Canada, eradication method, **6**, 4.
Tick, cattle—
effect on value of hides, **1**, 2.
eradication, effect on cattle industry in Tennessee, **1**, 2–3.
eradication, progress, and results, **45**, 1–2.
use of arsenical dips, management, value, etc., **15**, 2–3.
Tick-free territory released from quarantine, **27**, 3.
Timber sales, national forests, benefit to schools and roads, **3**, 2.
Timothy, breeding larger yielding varieties, work of department, **21**, 3.
Tobacco—
and Plant Nutrition Investigations, Plant Industry Bureau, work, **11**, 3.
industry, American, type specialization, demand, etc. **33**, 1–2.
Tomato clubs, girls', champions, work, etc., **20**, 1.
Tomatoes—
canned, maintenance of quality, warning to canners, **6**, 3.
growing by members of canning clubs, yield, etc., **12**, 4.
production by member of canning club, New Jersey, **31**, 3–4.
Transportation, farm products, studies, needs, etc., **24**, 2–3.
Tree—
injuries, danger of infection, **52**, 4.
surgery, importance, tools, methods, etc., **52**, 3–4.
Trichina parasites in pork, destruction by cooking, directions, **23**, 2–3.
Trichinosis—
cause, incurability, note, **23**, 2.
danger from eating uncooked pork, **23**, 2.
prevalence in dogs and cats, **4**, 4.
Trifolium angulatum and Trifolium parviflorum, mixture, adulterant of white and alsike clover mixture, caution, **5**, 1.
Truck crops—
diseases, control, work of Plant Industry, **11**, 2.
growing and marketing, studies, **50**, 1–2.
spraying for diseases, value to grower, **11**, 2.
True, A. C., delegate to Tenth International Congress of Agriculture, note, **20**, 4.
Tuber moth, potato, warning, **1**, 1.
Turkeys—
killing and dressing for market, directions, **17**, 1.
pasturing on grub-infested lawns, advantages, **7**, 3.
Twenty-eight hour law violations—
by railroads, fines, **46**, 4.
fines, **36**, 4.
fines for railroads, **47**, 4.
Tylenchus devastatrix, occurrence, control measures, **9**, 3–4.
Typhoid fly, dangerous character, **30**, 4.

Uruguay, exports of meats and meat food products to United States, October and November, 1913, **23**, 4.
Utah, area, land tillable, and per cent under cultivation, **25**, 3.

Vaccine, glanders, not satisfactory, **41**, 4.
Vaccines, veterinary, supervision by department, **9**, 4.
Veal, demand increase, study, **47**, 3–4.
Vegetables—
canned, value in winter diet, **14**, 2.
growing and marketing, studies, **50**, 1–2.
naming correctly, efforts of department, suggestions, etc., **25**, 4.
new introductions, promising, **30**, 1.
Vermont, area, land tillable, and per cent under cultivation, **25**, 3.
Vetch, hairy—
growing, seed selection and inoculation, **1**, 1–2.
winter cover crop for South, **4**, 4.
Vinegar, imitation cider, action against shippers, fines, etc., **3**, 1.
Vinifera grape, experiments, **50**, 1.
Virginia—
area, land tillable and per cent under cultivation, **25**, 3.
dairy farm, results from improved methods, **36**, 4.

Waffles, corn-meal and wheat, recipe, **33**, 3.
"Wart" diseases, potato, danger of introduction on imports, **4**, 3.
Washington—
agricultural experiment station, report, **18**, 4.
area, land tillable and per cent under cultivation, **25**, 3.
Waste, fruits and vegetables on farm, better management, suggestions, **14**, 2.
Wataka bean, claims by advertisers, tests by department, etc., **18**, 2.
Water—
freezing in fire bucket, prevention, directions, **6**, 2–3.
power, development on Pend d'Oreille River, Idaho, terms of permit, **4**, 1–2.
power, forest reserves, development of use, policy, **4**, 1–2.
quantity for farm home, daily requirements, **32**, 2.
supply, farm home, care, management, etc., **32**, 1–3.
surface supplies for home, danger, care, etc., **32**, 1.
Watermelon, wilt resistant, breeding by department, **11**, 2.
Waters, radioactive, warning against fraudulent, **8**, 2–3.
Weather—
Bulletin, in interest of cattlemen and others, semiarid regions of Southwest, **49**, 2–3.
Bureau, extension of service, authority requested, **26**, 4.
Bureau, forecasts of storms, frosts, and floods, how made, **27**, 1–2.
flags, reading, directions, **25**, 4.
forecasting, factors, **38**, 1–2.
forecasts, preparation, method, **38**, 1–2.
forecasts, wireless, for Great Lakes, **45**, 4.
map, explanation, **23**, 4.
maps, preparation, method, **38**, 1–2.
relation of planets, discussion, **45**, 3–4.
reports, value to cattlemen and other business men, **49**, 2–3.
world's, study, organizations, methods, etc., notes, **6**, 3.
Weatherproof whitewash, formula, **37**, 4.
Weeds, eradication of chicory, dandelion and plantains, methods, **8**, 4.
Weekly News Letter—
purpose, **1**, 1.
supply to county newspapers, **21**, 1.
use by public, purpose, etc., **14**, 2.
Weevil, alfalfa. *See* Alfalfa weevil.
Well, farm home, location, care, protection, etc., **32**, 1–2.
West, heat and drought, extent, effect on corn crop, etc., **3**, 2–3.
West Virginia, area, land tillable and per cent under cultivation, **25**, 3.
Western Irrigation Agriculture, Office, work, **22**, 1.
Wheat—
crop, world's, percentage harvested each month, **3**, 1–2.
growers, Hessian fly control, request by department, **48**, 3–4.
growing, Sasketchewan, cost, report of commission, **41**, 3.
growing, summer fallow system on one-man acreage, distribution of labor, **14**, 1–2.
Hessian fly infestation, investigations by department, **48**, 3–4.
increased production in Europe, **18**, 4.
wild onion eradication from fields and seed, **37**, 3.
White grub, food of skunk, **21**, 4.
Whitewash—
formulas, and directions for use, **37**, 3–4.
recipes, value for poultry plant, etc., **38**, 3.

Whitewash—Continued.
sanitary paint for interior and exterior use, **37**, 3–4.
weatherproof, recipe, **38**, 3.
Wine—
addition of sugar prohibited, **47**, 1.
addition of water prohibited, **47**, 1.
additions authorized, **47**, 1.
decision, violation penalty, date effective, **47**, 1.
definition by Agriculture Secretary, **47**, 1.
from grapes grown near chemical works, quality, **6**, 4.
labeling regulations, **11**, 1.
makers, American, hearing, announcement, **11**, 1.
Wireless weather forecasts for Great Lakes, **45**, 4.
Wisconsin, area, land tillable and per cent under cultivation, **25**, 3.
Women, farm, status, help by department, etc., remarks by Secretary, **19**, 2.
"Wonder fly killer," misbranding, fine, **5**, 3.
Woodpecker, Lewis, injury to almonds in California, **7**, 4.
Wool—
American, improvement, Australian methods, **34**, 1.
American, poor handling, effect on prices, **38**, 3–4.
Wool—Continued.
colleges, establishment, legislation urged, **47**, 1–2.
grading for market, exhibit by Animal Industry Bureau, **34**, 1.
grading methods, effect on prices, **38**, 3.
growers, legislation urged, **47**, 1–2.
marketing, Australian methods, advantages, **34**, 1.
marketing, cooperative, note, **30**, 3.
prices, June, 1912–1914, **49**, 4.
prices, relation to grading method, **34**, 1.
production, methods, scientific study, legislation urged, **47**, 1–2.
"skirting" fleece, practices in Australia, **34**, 1.
standardization, legislation urged, **47**, 1–2.
Worm, army. *See* Army worm.
Wounds, tree, danger of infection, **52**, 4.
Wyoming, area, land tillable and percent under cultivation, **35**, 3.

Yard-long bean, new name, tests by department, etc., **18**, 1–2.

Zuni Indian bread, recipe, **33**, 4.

WASHINGTON : GOVERNMENT PRINTING OFFICE : 1914